

# Manufacturers Record

Reg. U. S. Patent Office



ALL we have of Freedom, all  
we use or know—

This our fathers bought for us  
long and long ago.

Ancient Right unnoticed as  
the breath we draw—

Leave to live by no man's  
leave, underneath the Law.

Rudyard Kipling

REFERENCE  
DO NOT LOAN

June  
1937

# Built for MOUNTED EQUIPMENT

**CLEARING BRUSH—COUNTRY'S LARGEST RANCH.** It takes a "Caterpillar" Diesel Tractor to handle equipment like this: a LeTourneau Brush-Clearing unit with two blades . . . the small first blade bends the heavy brush down, and the large angle blade cuts it off at ground level. On the famous King Ranch in Texas, this equipment turns waste land into grazing land—giving the grass a chance to grow and the cattle room to get the grass.



**CLEARING LAND WITH A MOUNTED BOOM**  
A Cardwell Side Boom is mounted on this "Caterpillar" track-type Tractor. Fitted with stifflegs, footpads and spreaders, it hauls fallen trees from the river bank and piles them for burning—clearing land for Joe Wheeler Dam reservoir. Note how the tractor's broad treads furnish a solid, non-slip anchor.

STRONGER construction, wider gauge, ample power, and lower operating costs explain why "Caterpillar" track-type Tractors are chosen for use with mounted equipment. They are designed and built to handle heavy, superimposed loads—a factor which recommends them for all kinds of jobs.

A "Caterpillar" dealer can explain how the same qualities that enable these tractors to stand up under the strains of mounted equipment will bring *you* better performance. Get in touch with him.

# CATERPILLAR

REG. U.S. PAT. OFF.

# TRACTOR CO. PEORIA, ILL.

WORLD'S LARGEST MANUFACTURER OF DIESEL ENGINES

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**JUNE  
1937**

Volume CVI No. 6

## MANUFACTURERS RECORD

Devoted to the Upbuilding of the  
Nation Through the Development  
of the South and Southwest as the  
Nation's Greatest Material Asset

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**PUBLISHERS DAILY CONSTRUCTION BULLETIN AND  
BLUE BOOK OF SOUTHERN PROGRESS**

Member  
A.B.C.

JUNE NINETEEN THIRTY-SEVEN



Charles F. Kettering, vice president, General Motors, explaining new Diesel locomotive operation to C. W. Galloway, vice president, Baltimore & Ohio Railroad. See article on page 52.

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# NATURE MADE ALUMINUM FRIENDLY TO FOOD

## ADVERTISEMENT

### NO.1

#### *for Women Only*

In over 400 cities from coast to coast dairies are now protecting the purity and cleanliness of their milk with these sparkling, pure Aluminum Hoods.

America's dairymen lead the world in expert, sanitary care of this most precious of all foods. So zealous is their care that they now give you the cleanest milk package that science can devise.

These hoods are made of the same clean, pure Aluminum you use in your kitchen. They are non-fibrous; can't have the slightest effect on taste. They protect the vital pouring edge of the bottle; keep it free from contamination by ice-drippings, dust, air, and hands. They are leak-tight, yet lift off easily with the fingers. After removal you can use them to re-cover partially used bottles in the refrigerator.

Find out which dairies in your city protect their milk with these gleaming hoods. They give you the last word in cleanliness and purity. Aluminum Company of America, 2109 Gulf Bldg., Pittsburgh, Pa.



## ADVERTISEMENT

### NO.2

#### *for Men Only*

The Aluminum Milk Hoods described in the opposite panel are a daily demonstration of the fact that Aluminum is friendly to food.

That fact can mean much to every man whose business has to do with foods and foodstuffs. Aluminum is not affected by foods, nor does it affect foods which are processed, or served, packed or shipped in it.

Packers and canners depend on Aluminum utensils and equipment to preserve purity, taste, and color. Dairies use Aluminum tanks to retain maximum Vitamin C content. Brewers use Aluminum tanks and barrels to preserve taste, color, and clarity. Bakers, hospitals and restaurants prefer Aluminum utensils!

Bottlers of food products use seals made of Aluminum to assure purity of their product and to prevent discoloration. Packers of many leading foods and confections wrap their product in pure Aluminum Foil to assure freshness, cleanliness, and purity. Aluminum Company of America, 2109 Gulf Bldg. Pittsburgh, Pa.



# ALCOA · ALUMINUM



# • Manufacturers Record •

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## INDUSTRY MOVES SOUTH

450 Million Dollars Invested in 18 Months

**M**ORE than 450 million dollars have been invested in constructing and improving Southern industrial plants in the past 18 months. It surpasses the record of any similar period in the South's history. With announcements of new projects constantly reported by the MANUFACTURERS RECORD and its DAILY CONSTRUCTION BULLETIN, the forward movement of industry to the South continues on a wide front.

This remarkable industrial expansion in the Southern states is a belated recognition of the region's advantages for a highly diversified manufacturing development. To the older established industries—dominated by cotton spinning and other textile operations, forest products, iron and coke, oil refining—the advancement of today while adding to these, embraces such major activities as paper, sheet and plate mills, chemicals, meat packing, food processing, and fabricating plants to supply the growing demand of the Southern states and world markets.

Following these primary industries are allied or dependent plants to use their products and by-products, or to serve them, as the first cotton mills drew other textile manufacturing activities.

The accomplishments of the present, however, are certain to be overshadowed in the future as the records of 10 and 20 years ago have fallen before industry's steady advance.

Although the South is producing annually in excess of \$9,500,000,000 of manufactured goods besides more than \$1,600,000,000 from its mines and quarries, and \$3,969,000,000 from its farms, its potential productive capacity is limitless.

Through research and the coordination of chemical developments with the South's vast agricultural and mineral resources, there are wider fields of opportunity for expansion and markets that will be realized.

The tung oil development of the lower South is in its infancy. Starch and alcohol from potatoes and camphor from naval stores are among the newer developments. Added to the South's leadership in kraft board and paper, white paper from Southern pine is soon to be made on a commercial scale. Southern forests and cotton will provide an abundance of cellulose, described as the product of a thousand uses. We are just beginning to sound the possibilities of chemicals from salt, sulphur, coal, oil and gas, and hundreds of products from Southern crops of which the once lowly peanut and unwanted cottonseed may be cited as claiming the attention of research.

These and more are on the way. Scientific and mechanical difficulties are being overcome. Clear up the uncertainty of political-governmental interference with the orderly advance of scientific and business enterprise, and the South will experience a wave of development that will amaze the world.

## SOUTH'S PAPER INDUSTRY

**W**RITING in the MANUFACTURERS RECORD 13 years ago, C. Stewart Lee, vice president of The Pusey and Jones Corporation, called attention to the growing investment by far-seeing pioneers in the South's paper industry. He predicted that the few millions then invested would be counted in hundreds of millions in the next few years. The rapid expansion of the industry in the South in recent months is fulfilling that prediction.

Mr. Lee cited the fact that "paper, the industry which few realize is kindred in annual value to that of steel, will come into its own in the land where nature fosters reforestation, and will solve the problem of the world's shortage of accessible coniferous wood—the basic source of paper. Corporations operating Northern mills have been acquiring Southern stumpage. As has been the Southern migration of the cotton spinner, so will follow the travel of the paper maker to the South where wood, the essential, is within reasonable distance. The water powers of the South as they become harnessed for industrial purposes cannot but assist in this inevitable expansion. The economical practice of extracting naval stores from Southern pine, leaving commercial pulp as a residue, has been solved.

"Chemistry is removing the color hindrance from kraft pulp, making it white and available for the best grades of book paper. This field alone will mean the relocation or re-establishment of paper mills of great tonnage in the South."

This movement of the paper industry southward has been gathering momentum until in recent months more than 14 kraft pulp and paper mills with a total investment of \$85,000,000 have been started or proposed. Added to this remarkable advance in the kraft paper industry of the South is the beginning of the manufacture of newsprint and white paper from Southern pine with the announcement of the first newsprint mill which is to be established in East Texas, probably in the Lufkin area. Other projects are being discussed and as the kraft industry is rapidly developing in the South so will white paper making from pine.

Following these new pulp and paper mills, the South presents opportunities for the establishment of processing, fabricating and chemical plants using or supplying materials of the paper industry. With its great forest resources under proper methods affording a perpetual pulpwood supply, the South has ample resources of sulphur, clays, salt, naval stores and chemicals necessary for the manufacture of paper.

While engineers and paper manufacturers long recognized the possibilities of the South for paper making, capital, which had large investments in the North and Canada, was slow to invest in Southern plants. Realization of capital that the inevitable outcome could not be delayed in the face of depleted northern pulpwood supply and increasing demand has resulted in the

amazing advancement of recent months in the building of great paper mills in the South.

Mr. Lee's prediction of October, 1924, is being fulfilled. It is a coincidence that 13 years later, on October 18-20, the Technical Association of the Pulp and Paper Industry is to hold its 1937 annual convention at Savannah, Ga. More than 500 managers, superintendents and others identified with the paper industry will be in attendance. The general topic of the three-day meeting is to be the development of the Southern paper industry. Discussions will cover pulpwood board in all its aspects, cost of growing, cost of transportation, manufacturing and taxes; pulping processes of Southern pine; paper making.

Pulp and paper manufacturing is not only becoming a major industry of the South but the South is destined to be the dominant paper producing region of North America.

## THREAT TO SUGAR DEVELOPMENTS

**F**OR the first time in 25 years an all new sugar factory is being erected in Louisiana—a 2,000-ton mill of the Iberia Sugar Cooperative, Inc. at New Iberia, which it is expected will be ready for the 1937 crop.

Other developments are the newly formed LaFourche Sugar Corporation, which has bought and enlarged the Leighton factory at Thibodaux to 1200 tons and the recently organized Duhe-Bourgeois Sugar Company of Jeanerette, which is building a 1000-ton plant at Bayou Teche.

Sugar legislation now pending in Congress, in its effect upon present and future expansion, is causing serious concern. If what has been proposed is adopted, Louisiana sugar production will be curtailed below even its present modest proportions, and the reasons frankly stated are to give larger quotas to Porto Rico, Cuba and certain foreign countries to facilitate the establishment of "reciprocal treaties." Such measures, if adopted, must effectually checkmate development of sugar production in the Southern states, which is moving ahead under the stimulation of new types of sugar cane introduced into Louisiana by the U. S. Department of Agriculture.

Louisiana sugar production for 1936-37 is estimated at 385,540 tons compared with 333,000 tons in 1935-36. The 1936 season harvest was 5,665,000 tons of cane, an increase of 858,000 tons over 1935. Sugar mills used 4,854,000 tons of the 1936 crop, the remainder going into the production of molasses and used for planting. Molasses production totaled 32,616,000 gallons compared with 25,614,000 gallons the preceding season.

On the one hand development of an important industry is encouraged by the forward work of the Department of Agriculture, while on the other reciprocal treaties now being espoused, and not always with sufficient regard to our own producers, create foreign competition, and are likely to operate seriously against domestic producers, at the same time curtailing American employment.

# SAFEGUARD INVESTMENT

**W**HEN the South emerged from the Civil War exhausted in man power and possessions, this section had very little to offer capital and enterprise as an inducement to locate except the wealth that nature had given it.

Today, we see here great plants for the making of steel, chemicals, paper, textiles, and industries of many kinds using the abundant raw materials and by-products of its minerals and crops. New establishments have been created. Organizations have moved from other sections of the country or located branch plants to take advantage of the greater opportunity the South offers.

In encouraging industrial expansion, the South assured capital of fair treatment. More than this, many communities granted tax exemptions from 5 to 10 years to new industries, recognizing that their establishment would create employment, open a market for local raw materials and enhance the wealth of the whole section.

The fullest development of the South only will come about through the investment of capital—its own and capital from other sections. To safeguard and protect that capital must continue to be the objective of business and government leadership if investors are to have the confidence to develop Southern enterprises.

This fact is stressed by the Freeport Sulphur Company in an advertisement that will appear in the *Blue Book of Southern Progress*, the aim and purpose of which is to promote the economic advance of the Southern states. It is pointed out that the immediate job is to bring to this region new revenues and new opportunities for development, and the effective way to accomplish the quickened industrialization is by safeguarding investment, thereby attracting new capital and developing new markets for Southern made goods. It is believed that 1937 can be made a memorable year by united effort if industry's leaders of the South will join forces to attain the goal of increased prosperity, and a higher standard of living.

It is an appeal to the intelligence of business men of all classes. It should be impressed upon politicians who are having such a large part at present in the affairs of business that the South has a tremendous stake in the encouragement of capital and the safeguarding of investment. This section has unmatched resources that will be only potentially valuable until the hand of capital touches them. Too often ill-considered laws, instead of inviting investors, repel them.

Taxes now are high and will be higher, but surely there are forms of taxation that can be spread over a wider base than such hysterical measures as unjust severance taxes and legislation aimed primarily at larger business enterprises merely because they have prospered through intelligent management.

It is well also, if the efforts of business are to be considered as important in our future success, to impress upon those who represent us at the nation's capital as well as in state and local government that

the laws they have been proposing, some of which unfortunately have been adopted, are punitive in application if not in intent.

Business has been made the scapegoat, and although it is the source of our progress, it has been accused of almost every crime on the calendar. It is an important thought to impress upon those who, while blithely voting away sums so huge that the mind cannot grasp their significance, have gone further in their effort to "remake America" by stifling the incentive and confidence necessary to all successful business. An embargo has been placed upon enterprise; very few of us can reason out the sense of it.

Capital must at least have a reasonable chance. It has been too often the object of attack by petty politicians seeking to curry favor with the crowd.

## REDUCE THE DEBT

**T**HE absence of assurance that the public debt will be halted at its present figure obscures the outlook necessary for planning and business growth.

The plans of the advocates of the "more abundant life" to spend our way into prosperity regardless of the amount or the eventual payment of the money borrowed, will tend to disaster in the end unless they are checked. We have gone on spending until a considerable part of the population regards dollars as the fruit of trees, and work as folly, while a generous government hands out money with abandon. It is to be hoped that Congress means to tighten the purse strings. Some indications recently have pointed in that direction, but our representatives have been so free with taxpayers' money that the proof of economy, to be convincing, must be very clear. It will take a lot of work and a lot of effort to complete the long uphill job of paying the bill which has piled up.

The *Kansas City Star*, in referring to an announcement from Washington that the public debt of the United States has just "crossed the 35-billion dollar mark for the first time in history," says: "It is properly termed the public debt, for it is an obligation upon the people of America, upon their wages, their incomes, their production, their business, their wealth as a whole."

It then adds: "It might be a tolerable situation for the moment if it were an absolute certainty that the debt finally would be halted at this figure, and the long process of reduction would be begun, as it should be, in a period of improving business conditions. But there exists no such assurance."

The time to retrench is now, and this applies with special emphasis to the enormous business of relief which was mistakenly assumed by the Federal government when it should have remained in state and local hands.



# THE SOUTH AS A PRODUCER AND CONSUMER OF STEEL

By

**T M. Girdler,**

Chairman, Republic Steel Corporation

ONE of the important factors in the growth of the South as a producer of steel is the development of the region as a steel-consuming area. An illustration of this trend is provided by the expansion of various industrial companies. Can companies are planning the construction of new plants in the South to supply the requirements of food canneries. This in turn has led steel companies to build new tin plate mills in the South. Republic Steel Corporation, which recently acquired the properties of the Gulf States Steel Company in Alabama, is planning considerable expansion of those properties.

Another factor which is aiding the growth of the steel industry in the South is the movement toward the decentralization of manufacturing in all parts of the country. This trend is shown in the opening of new assembly plants and parts manufacturing plants by automobile companies in the East, South and West. Other industries are following the same policy, the aim in each case being to locate productive facilities closer to the various consumer markets. This movement will steadily increase the amount of steel consumed in the South, and as this total rises, production and employment at steel mills in the South will doubtless keep pace with the gain in consumption.

Last year, production of pig iron and ferro-alloys in the South totaled 4,175,146 gross tons, against 3,142,695 tons in 1935, a gain of approximately 30 per cent. Further gains have been registered thus far in 1937.

A clue to the gains in production and in employment made this year is provided by payrolls in February in Southern steel plants. At the 30 steel plants in this region, 19,000 persons were employed in

February, 1937, against 16,000 in February, 1936, and 12,000 in February, 1935. Payrolls in February, 1937, totaled \$1,914,000, against \$1,385,000 in February, 1936, and \$828,000 in February, 1935. These figures do not reflect the increases in wages which became effective in March. Similar increases in employment and payrolls were made in Maryland, West Virginia, Kentucky and Missouri, but the figures are not yet available.

Thousands of additional employees will be added when new mills now being constructed in Maryland, Alabama and elsewhere in the South, are opened.

In virtually all important branches of the steel industry, the South has a productive capacity equal to at least 10 per cent of the nation's total. Thus, seven Southern states had in 1935 a combined annual capacity of 6,851,560 gross tons of pig iron and ferro-alloys, or 13 per cent of the nation's total, 52,715,100 tons. The South's proportion of the nation's annual potential coke supply was slightly higher, amounting to 6,468,000 tons in 1935, or 14.3 per cent of the total for the entire country. Ten Southern states had a combined capacity of steel ingots and castings of 8,336,800 tons, or 11.6 per cent of the nation's total. In finished hot rolled iron and steel products, the South had

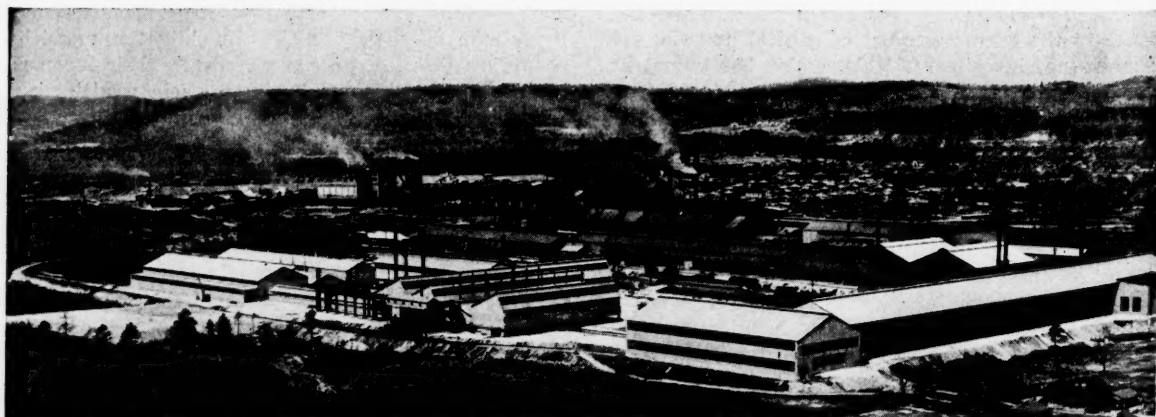
a capacity of 6,517,250 tons, or 12.0 per cent of the total for the nation. This volume is now being increased through the construction of new rolling mills, which will give the South a better balanced output of finished rolled products, particularly through an increased capacity for hot rolled strip, sheets and tin plate.

Aided by the general recovery of business, and by the rapid industrial development of the Southern area, iron and steel plants located in the South have in-

(Continued on page 66)



Gadsden Plant of the Republic Steel Properties in Alabama.





# WORLD LOOKS TO THE SOUTH FOR HELIUM SUPPLY

Plant in Texas Has Yearly  
Capacity of 24,000,000  
Cubic Feet

**T**HE Federal Government operates in Texas the only plant capable of large scale production of helium, the gas element that could have prevented the destruction by fire of the dirigible Hindenburg. This \$800,000 plant, since its first unit was placed in operation in 1929, has produced approximately 75,000,000 cubic feet of the gas so necessary to the safety of lighter-than-air craft. Its helium eliminated the fire hazard when the Akron and the Macon were destroyed several years ago.

Subsequent to these disasters and what has been virtual withdrawal of the United States from operation of gas-bouyed aircraft, the plant has been operating intermittently with accompanying reduction in output. The Government owns the gas mineral rights in the 50,000 acres of land known as the Cliffside structure, near Amarillo. It is conservatively estimated that this area contains approximately 100,000,000,000 cubic feet of helium bearing natural gas, capable of producing 1,800,000,000 cubic feet of helium. The known Texas supply will last 180 years at the rate of output in 1929.

Two helium reserves in Utah have been set aside for emergency use. Both undeveloped, they are estimated to contain

## World's Chief Source of Helium

The Government's plant at Amarillo, Texas, has a capacity of 24,000,000 cubic feet a year.

700,000,000 cubic feet of non-inflammable and non-explosive gas.

To separate the helium from the natural gas, which after processing is sold to a nearby gas company for domestic and industrial use in Amarillo, the natural gas is reduced to an exceedingly low temperature. First the high carbon dioxide content is removed by scrubbing under pressure with a solution of caustic soda. This preliminary operation leaves methane, ethane, nitrogen and a little less than 2 per cent of helium. When the combination of gases enters the separation building, a cooling process brings the temperature down to about 300 degrees below zero. Helium is extracted from the resulting liquid-gas mixture. The complete operation of cooling a cubic foot of the gas, making the extraction and restoring it to room temperature requires less than a minute. Nitrogen is also removed and sent to a gas holder for use in the refrigeration cycle.

Cost of producing the helium at the Government plant varies as the quantity is increased or decreased, although if the rated capacity of 24,000,000 cubic feet per year is maintained the net cost would be about \$4 per thousand cubic feet. However, about \$10 per thousand cubic feet is generally accepted as the cost of production. No allowance for plant depreciation or depletion is made in this figure.

Back in 1925, when the Shenandoah broke up and crashed in an Ohio gale the

cost of helium was around \$60 per thousand feet. At that time the Fort Worth helium plant, since moved to Amarillo, was in operation. Importance of an increased supply of the gas was stressed by the fact that loss of the Shenandoah's helium left the Navy with less than half enough to inflate the Los Angeles, which was then undergoing repairs at Lakehurst.

The price set for the only privately produced helium from the Colorado and Kansas plants of a Louisville, Ky., concern was between \$75 and \$100 per cubic foot. This high cost, coupled with the lower lifting power of helium and the additional weight of the structural reinforcement of the Hindenburg made after studies of the Macon's failure, is given as the reason for use of hydrogen in the German craft at a cost of \$2 per thousand.

Stringent regulations govern the sale of helium for commercial and export purposes and even for medicinal work, where it has been found valuable in relief of respiratory diseases. Men working under pressure conditions below ground and deep sea divers are said to be benefited by use of the gas. Under the act of Congress approved in 1927, the Bureau of Mines is authorized to maintain and op-

(Continued on page 64)



# AUGUSTA—

## *Plans Celebration of Completion of Initial Project to Make This Georgia City a Great Inland Port of the Southeast*

**A** SMALL but earnest group of leaders, headed by Thomas J. Hamilton, editor of the 150-year old *Augusta Chronicle*, more than a decade ago envisaged Augusta as the great inland port of the Southeast. That ambition for the city at the head of navigation on the Savannah River is nearer realization with the completion of the \$2,000,000 lock and dam system below the city and the prospect of Federal approval of the \$22,000,000 navigation, flood control and hydro-electric project above the city at Clarks Hill. The proposed development has been recommended by the National Resources Board and a special commission appointed by the President. With the first goal reached in this dual program of development, Augusta is now seeking, in a bill before Congress, to secure a Federal barge line for the Savannah River, to take advantage of the opportunity for development of water transportation to distribute the products of the rich Piedmont section of Georgia and the Carolinas.

To mark the formal opening of the lock and dam, built by the Federal government to give Augusta a year-round channel to the sea, the city is planning a celebration on June 26th.

Millions of dollars have been saved in freight rates through the differentials enjoyed by Augusta and the surrounding territory due to the city's location on the Savannah river, but river enthusiasts believe that this sum is small compared to what will be saved with the inauguration of dependable service and the establishment of the favorable transportation rates that will result.

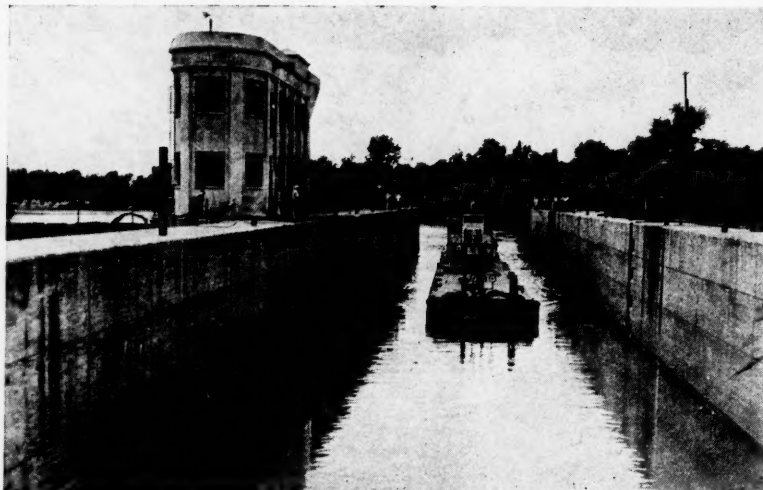
Augusta is on a line, north and south,

### **First Boat to Pass Through New Locks**

The Wiley L. Moore, named for the president of the Wofford Oil Company, bound for Augusta with cargo of oil.

with Toledo, Ohio, and is farther west than any other city served by a navigable outlet to the Atlantic Ocean. The development of Port Augusta virtually means the pushing of the Atlantic ocean 130 miles inland, which is the approximate rail and highway distance from the port of Savannah.

The slogan of the river development movement at Augusta is: "In By Water, Out By Rail and Highway." Augusta is the point where six railroads and three national highways meet the Savannah river. The city is the heart of a section rich in minerals and clays, having fertile soil and established industries.



By

**Hillary H. Mangum**

Assistant Secretary, The Augusta Chamber of Commerce

The tremendous savings that will accrue to the people of the wide area served by the Savannah river through the improvement of water transportation to Augusta were clearly set out in the recent hearing on the Federal barge line before the sub-committee of the House Interstate and Foreign Commerce committee. It was shown that a large number of commodities are affected, including cotton, cottonseed products, cotton textiles, kaolin, brick and tile, sugar, canned goods, petroleum oils, fertilizers and thousands of tons of miscellaneous commodities.

A fair example of the advantages of river traffic is shown in the record of the barge line inaugurated on the Savannah river by Wiley L. Moore of Atlanta, president of the Wofford Oil company. This company is the distributing agency in Georgia and the Carolinas, with terminals at Augusta, for the products of the Pure Oil company of Chicago. Since the barge line was put on the river the volume of business has grown from one-half million gallons to one and one-half million gallons annually. This trebling of the business distributed from Augusta has made necessary enlargement of the company's terminal facilities.

The oil is pumped from the barges at the terminals and repiped into tank cars and shipped by rail to points throughout the three states, much of it going to points as far as Charlotte. During the first four months of operation, the Pure Oil company shipped by rail from Augusta to Charlotte and other Carolina points 336 tank cars of gasoline. During the same period, the company shipped to other interior points 386 tank cars.

Before the Federal government really took hold of the river problem in earnest, transportation between Savannah and Augusta by water was dependent largely upon the weather. Both drought and flood conditions materially affected the schedules of the boats. The greatest diffi-

*(Continued on page 64)*

# MORE SHIPS BEING BUILT

**\$120,000,000 Value of 98  
Vessels Under Way at  
Southern Shipyards**



Mobile, Ala., Shipyard of Ingalls Iron Works, which also maintains marine ways at Decatur, Ala.

**S**HIP construction in the United States has been increasing. The gain in the early months of this year amounted to 40 per cent compared with 1936, most of which was in the smaller types of vessels, tankers, Diesel cargo ships and barges. The last census of 1935 showed a production value of American ship yards of \$154,899,000 which was an increase of 67 per cent over 1933 but still 33 per cent under the 1929 output.

Increased activity in Southern shipbuilding has been gratifying. Production has been steadily rising since 1933. The South, with three-fifths of the coast line of the United States, has some 45 ship building and small ship repair yards.

In a report to the MANUFACTURERS RECORD covering activity of recent weeks, 14 Southern shipyards show 98 vessels under construction with a total of 166,900 tons at an estimated cost of over \$120,000,000.

New commercial work at 12 Southern shipyards covers 88 vessels of 118,300 total tonnage. Naval work at the Newport News Shipbuilding and Dry Dock

Co. includes 6 new vessels of 41,500 gross tons. Vessels under way or ordered at the Norfolk Navy Yard include 9 U. S. destroyers of 1500 tons each at an estimated cost of \$38,500,000 for hulls and machinery. Under way at the Charleston Navy Yard are four vessels with a total tonnage of 5,600. These are among the more important shipbuilding projects in the South.

One of the larger shipbuilding concerns of the South specializing in barges, reports that shipyards are fast filling up with the trend definitely toward all-welded construction. Another concern building all-welded vessels, with its plant operating at capacity, expects to spend \$500,000 for materials and more than \$12,000 for plant improvements. A yard specializing in small ship repairs will spend \$12,000 for dockage facilities.

Whether shipbuilding will be maintained at its present rate or increase will depend largely upon the operation of the Merchant Marine Act of 1936. This is the most important piece of legislation now on the statute books affecting sea-going tonnage, according to H. Gerrish Smith,

President of the National Council of American Shipbuilders.

The Act calls for the creation of a Maritime Commission of five members and this Commission is just beginning to operate under the leadership of Jos. P. Kennedy. Among the Act's major provisions is the shifting from existing mail contracts with ship operators to a different form of aid, and upon the accomplishment of this will rest to a considerable degree the future success of American bottoms in foreign trade service.

Some time must elapse before the effect of the work of the Maritime Commission will be seen. The Act materially affects the entire shipping of the country, having a distinct bearing upon domestic trade as well as foreign trade. Steamship lines stimulated by growing foreign trade have been adding extra sailings, and report the best business in sight in seven or eight years. American freight going abroad is,

(Continued on page 62)

Newport News Shipbuilding and Dry Dock Company, Newport News, Va.





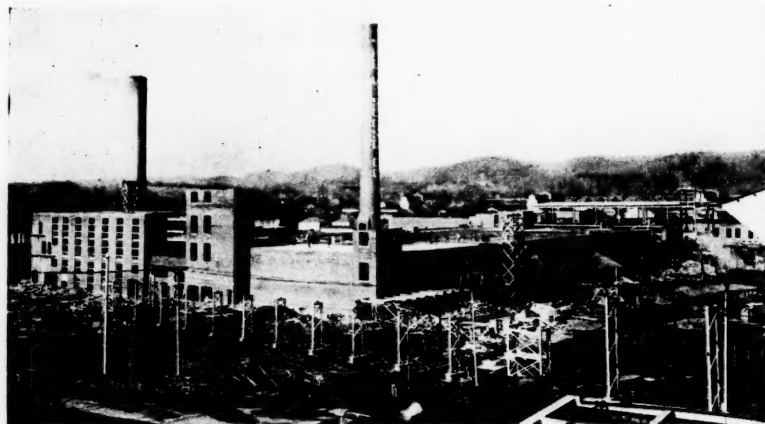
# RAYON PRODUCTION AT CAPACITY

**Plant Expansions Being  
Pushed to Meet Demand—  
South Supplying 56 Per Cent  
of Domestic Output**

**T**HE country's rayon mills are operating at capacity with production during the first quarter of 1937 of 76,000,000 pounds, setting a new high record output for any quarter in the history of the industry. Rayon mills are expected to continue operating at capacity during the remainder of the year and some further increase in plant capacity is anticipated, but producers are experiencing difficulty in obtaining new producing machinery, according to the Textile Economics Bureau, Inc., which predicts that "there will be a shortage of rayon yarn in this country for some time to come."

Rayon companies have been expanding to meet increasing demand and enlarging facilities for making short staple rayon which is among the new developments along with the manufacture of a new rayon tire fabric. Present expansion plans of the industry call for an output of 400,000,000 pounds annually to be reached perhaps in 1938.

In the South, the Viscose Corporation is reported building a new 20,000,000 pound capacity plant at Front Royal, Va., Du Pont has been improving its Southern facilities, the Celanese Corporation plans further expansion at Amcelle, Md., the Tubize Chatillon Corporation is increasing by 50 percent its plant facilities at Rome, Ga., and enlarging its knitting plant at Hopewell, Va., the American Enka Corporation at Asheville is complet-



ing extensive improvements, the Sylvania Corporation, American Bemberg, Industrial Rayon Corporation, and North American Rayon are among the leading producers that are sharing in the activity.

Domestic production of viscose plus cupra and acetate yarns during the first quarter of 76,000,000 pounds, according to Rayon Organon published by the Bureau, compared with a 1936 quarterly average of 69,400,000 pounds. Output of viscose plus cupra (non-acetate) rayon yarn amounted to 59,000,000 pounds, compared with 1936 quarterly average of 53,700,000 pounds, and 55,600,000 pounds produced in the final 1936 quarter. Acetate yarn production totaled 17,000,000 pounds compared with a 1936 quarterly average of 15,700,000 pounds.

Rayon production in 1936 was 275,000,000 pounds, an increase of 7 per cent over

**Progress View of Viscose Company's Plant at Nitro, W. Va., for the Production of Fibro (Viscose cut staple)**

Other Southern plants of the company are located at Roanoke, Va., and at Parkersburg, W. Va.

the 1935 output and production increases.

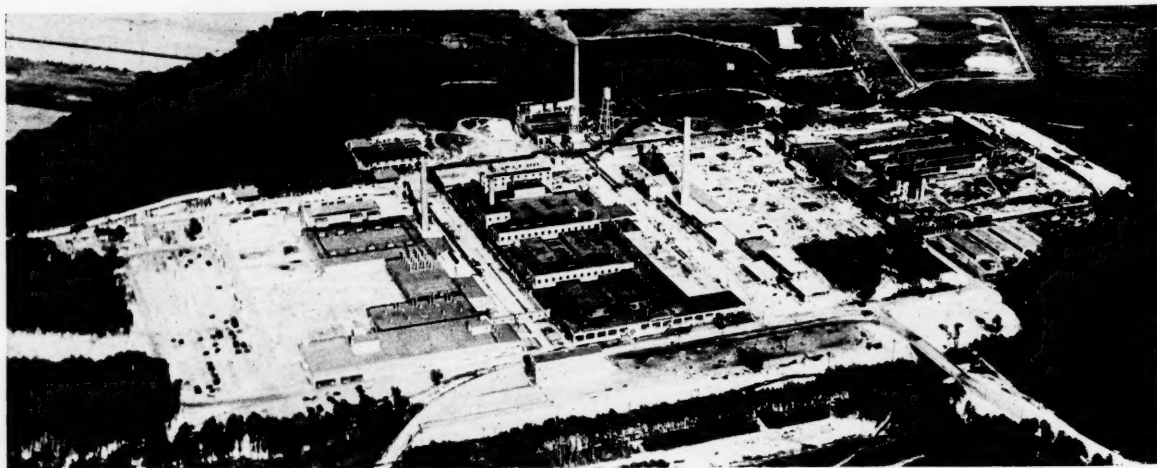
As the South's 15 establishments accounted for 56 per cent of the value of the domestic rayon output, the increasing activity of the rayon industry is further evidence of the industrial advance of this section.

Based on the 1935 census of rayon and allied products, Virginia with 6 establishments reported a production of \$45,086,000 and expenditures of \$14,675,000 for materials and power. Tennessee, the second largest producing state, had an output of \$41,408,000 and expended \$15,341,000 for materials and power. As Georgia, Maryland, North Carolina and West Virginia each have one establishment, individual production figures are not available for publication without disclosure.

(Continued on page 66)

**Du Pont Rayon Plant, Richmond, Va.**

Other similar Southern developments of E. I. duPont de Nemours & Company are located at Waynesboro, Va., and Old Hickory, Tenn.





# USING MORE PAINT

**C**ONTINUED gains in sales of paint, varnish and fillers are reported by the paint industry of the country. Sales of 579 establishments for 1936 amounted to \$382,556,000 which was an increase of 14 per cent reported by comparable establishments in 1935. For the first three months of this year sales reached \$97,817,000 as compared with \$73,896,000 for the first three months of 1936, and \$68,608,000 for the same period in 1935.

## \$60,000,000 Output in the South

The South, with abundant raw materials for the manufacture of paint, has been developing its paint, varnish and filler industry along substantial lines. Growth of the industry, while not spectacular, has been steady. Within the Southern States are 167 paint, varnish, and related products manufacturing enterprises. The value of their output in 1936 is estimated at \$60,000,000 compared with about \$38,000,000 at the low point of the depression in 1933. The South's paint industry is spending more than \$33,000,000 a year for materials and power.

One Southern manufacturer of paint products, which has paid its stockholders an average dividend of 7.57 per cent for 34 years, writes:

"We produce paint products of various types and kinds for various purposes, competing with the largest national paint manufacturers. During 1936 we expended approximately \$5,000 for additional equipment and have put in an air-conditioning system and contemplate adding other machinery this year."

Twelve smaller paint manufacturers of the South, doing a combined business of approximately \$2,000,000 a year, reported to the MANUFACTURERS RECORD expenditures of over \$12,000 for equipment last year, and three of the 12 expect to expend over \$5,000 for improvements this year.

Two latest additions to the paint manufacturing capacity of the South is the reported new \$200,000 Glidden Company's plant at Valdosta, Ga., and the duplication of capacity of the Socony Paint Products Co., Port Arthur, Texas, at a cost of \$100,000.

## Improving Paint Efficiency

In discussing the painting problems in the South, Henry A. Gardner, Director Scientific Section, National Paint and Varnish Association, cited in a recent address remedies for sealing, flashing of

## \$60,000,000 Output of Southern Paint Products Manufacturers in 1936 Who Spent \$33,000,000 for Materials and Power

paints on pine and cypress, and suggested mildew preventatives. Included in his suggestions for improving paint efficiency the following points were emphasized:

To prevent the rapid failure of paints on Southern yellow pine, the bark side might be faced for painting, rather than the pith side. The idea of improving the durability of paints on Southern pine by mixing large quantities of volatile thinner is groundless. For this purpose oil-rich primers are probably better. A distinct improvement is achieved by mixing the priming coat with rich proportions of pigments. Such a mixture covers summer woods better, and offers more resistance to moisture. A dense film is formed by the use of a primer with a pigment concentration up to 70 per cent of the total paint. Such a primer gives adhesion and retards penetration in woods high in resinous content. Knots from which resin may exude may be sealed before painting by applying aluminized varnish or properly plasticized priming solutions. Priming cypress wood, an oily type, quite absorptive to paint oils, may be made more effective by using a little extra drier. Primers rich in pigment concentration, even up to 70 per cent of good drying pigment, are usually satisfactory for cypress. It is not necessary to seal knots in cypress before painting, as there is little exudation of oil or resin observed in painted cypress surfaces.

As a mildew inhibitive, the mixture of a paste containing 1.2 per cent of bichloride of mercury by weight, to the

paint has proven effective in the laboratories of the National Paint and Varnish Association. Red cuprous oxide has been found to be a very efficient material for use as a mildew inhibitive in dark colors of paint. For light green shuttering paints and the like. Paris green, from 10 to 20 per cent of low tinting strength zinc oxide will help minimize mildew without disturbing the tint.

## New Paint Ingredient

A new product, made of raw materials that can be supplied by the South, is of interest to the paint industry. Metallic lead is making its debut as the main ingredient of a protective paint, according to the *Industrial Bulletin* of Arthur D. Little, Inc. Traditionally, lead has been used in oxide forms as a chief pigimentary component of many common industrial and marine paints. "Metalead" paint, however, is made from thin lead foil broken up to fine flakes. When spread upon a surface in the form of a paint film, the individual tiny flakes of lead form a "leaf" or interleave into a film.

The adhesion and ductility of the lead-leaf paint film are dependent on both lead and the vehicle; at present the vehicles employed are the new synthetic resins and tung oil and mixtures containing phenolics such as Beckacite, Durez, or Bakelite.

The new paint is offered chiefly as an undercoater or primer on structural frame work and general construction and may also find eventual use in the chemical, oil and transportation industries. It has resistance to temperatures up to 500 degrees F. and chemical resistance to the fumes of common acids.

## Casein Paste Paint

Rapid growth of the use of acid type casein paints, 2,000,000 gallons were produced last year, is predicted. Unlike the familiar kalsomines that can be dispersed in water before use, the casein paste paints to the user are similar in appearance and workability to oil paints.

## Paint Packaging Developments

A manufacturer of paints has found an application for single-use tin tubes which may start an interesting new development in packaging, says the *Industrial Bulletin*. Uncolored white paint is sold in the standard sizes and dealers are supplied with tubes of colored pigments in oil. Under this plan the dealer needs to stock only a part of his usual inventory, and, by maintaining a large number of colors in the tubes, can meet a wide variety of customer demand.

## MANUFACTURE OF PAINT, VARNISH AND PIGMENTS IN THE SOUTH (Latest Census 1935)

|   |              |
|---|--------------|
| Number of establishments ..                     | 167          |
| Wage earners, average number for the year ..... | 3,938        |
| Wages paid .....                                | \$4,004,000  |
| Salaries paid .....                             | \$3,283,000  |
| Cost of materials and power ..                  | \$29,177,000 |
| Value of products .....                         | \$53,930,000 |

# APPRENTICE TRAINING

By

E. K. Jenkins

Director of Vocational Education  
Structural Clay Products Institute

## Closer Cooperation Needed Between Vocational Schools and Industrial Groups

**T**HE apprentice problem which industry faces promises to become acute. Concerted action in a program of national education is called for, experts say, if industry is to achieve full recovery. The problem is deep rooted in social and economic theories. Fundamentally, our educational system is somewhat at fault.

Today, we have a college enrollment well over a million. This means that more than 300,000 new students enter college every year. Half of them are not college material. But the colleges continue to have large enrollments, and few applicants can be barred.

A somewhat similar condition exists in the high schools, where the principal and faculty have a rather exact check on the abilities of students. The "i. q." (intelligence quotient) of each student is on file in the principal's office where it can be consulted by every teacher. Nevertheless, the high schools attempt to qualify these students who should never go to college, and who, after a year or two drop out and become white-collar workers of a sort.

William F. Patterson, executive secretary of the Federal Committee on Apprentice training, states:

"Prominent among the significant developments in apprenticeship has been the awakened consciousness of the nation to the serious consequences of utter neglect of this important social and economic problem. Acute awareness on all fronts has resulted in an increased solidarity of the underlying philosophy of sound apprenticeship.

"There is growing up a profound realization that soundly conceived apprenticeship throughout the country can be made a factor in stabilizing the labor market. The breadth of training, teaching and experience on the job provided by a comprehensive program will give versatility and adaptability to journeymen which will enable them to tackle and complete any job within the scope of their trade with utmost confidence.

"A serious situation exists when a prominent national labor leader states that America has more half-baked mechanics than any other industrial nation and that 90 per cent of our youth who think they are learning trades are acquiring only a fraction of a trade. The better ordered apprentice set-ups in the United States are so constructed that any parent would be proud and happy to put his own son in it."

### Improvement Noted

However, the situation is rapidly showing improvement. The gradual swing of robust youth to vocational training has

prompted the prediction in educational circles that apprenticeship soon will be open only to those who have had pre-apprentice training in vocational schools.

The unemployment problem which has faced the country has further stressed the value of skill in the crafts, with the result that the last Congress increased the appropriation for vocational education by more than \$5,000,000. Educational trends are indicated by figures from the Federal Office of Education showing enrollment in vocational training classes of more than a million students in 19 years, an increase of more than 700 per cent. An additional 100,000 early this year has brought the figure to 1,380,000.

According to Dr. J. C. Wright, assistant commissioner for vocational education. Office of Education, "there is a distinct and easily recognizable trend toward a revival of apprenticeship. The trend is toward a plan under which the public schools will share with labor and industry the responsibilities for seeing that apprentices are given all-round training for journeyship in their particular trades."

### Plan of Clay Products Institute

Indications are that industry will lend strong support to this program. The Structural Clay Products Institute, of Washington, D. C., representing the country's leading manufacturers of brick and building tile, has already inaugurated a vocational program. Working with Federal, State, and City vocational agencies, courses will be offered designed to turn out thoroughly trained apprentices in masonry. The Institute is also conducting a campaign of education designed to correct public thought on the subject of the value of the crafts and the need for pre-apprentice training in vocational schools.

The Institute's Apprentice Training Program includes:

1. Assembling a course of study for training and pooling all experience for the most desirable courses in areas having training in operation or contemplating such training courses.
2. Assisting State Departments in developing ways of teaching or methods of instruction for masons and salesmen.
3. Acquainting contractors with the

services offered and the financial benefits they should receive from trained craftsmen.

4. Making available facts to show boys why they should become masons and what the prospects are in the trade.

5. Making sure that the cost of instruction for the following year will be included in state and local budgets as provided by vocational funds and usually allocated between March and June for the following school year.

6. Selling the idea that new and better men must be trained.

7. Securing for the Structural Clay Products Industry the full or part time assistance of directors, supervisors and teachers thereby resulting in the public schools finding the Industry ready to intelligently cooperate with their best efforts in training masons.

8. Securing full information with respect to the need for training in guidance programs for the purpose of having the best boys selected to learn the mason trade.

9. Securing the cooperation of training supervisors in areas where it is advisable to set up short unit courses for those who may be able to reenter the trade.

### Movement to Spread

The lead of the burned clay industry is expected to be followed by other industrial organizations. The National Master Plumbers Association and the International Union of Journeymen Plumbers are considering plans for apprenticeship, and the National Master Painters Association, at its recent convention, also approved a similar plan.

This action, which is so far seemingly confined to the building trades, is largely due to the situation in which these trades find themselves with the sudden expansion in building operations.

Howard B. Myers, social research division director of the Works Progress Administration, recently said: "Older carpenters, bricklayers and other skilled workers, even up to 60 years of age, are finding work, partly because there have been almost no apprentices taught in the past years." Mr. Myers pointed out that

(Continued on page 68)

# ENERGY DRIVE INCREASES WEAVE ROOM EFFICIENCY

**I**N a majority of textile mills an increase of weave room production offers unquestionable profit advantages. However, numerous factors limit the loom speeds to certain maximums for various types, widths and grades of goods, and for various types of weaving equipment as determined by years of experience in the art of weaving.

One of the speed limiting factors is the load characteristic of the loom itself. With each loom operating cycle there occurs at least two and sometimes four very high power loads of momentary duration. These load pulsations set up severe stresses in both the loom and the transmission equipment operating the loom. Frequently this limits loom speed when all other factors would permit operation at a higher speed.

Working on the theory that a means of storing energy between peak loads on each loom and discharging that energy into the loom at the moment of peak load would relieve these stresses, improve loom operation and permit increasing the loom speed, studies and exhaustive tests have been conducted in more than 80 cotton mills during the past 2½ years.

From this series of studies has been developed the Energy Drive. It consists of a flywheel, of the proper kinetic energy capacity, fitted to each loom and oper-

**Higher Production as Well  
as Improved Operation and  
Lower Operating Costs Are  
the Results of This New De-  
velopment in Weave Room  
Power Transmission. The  
Energy Drive Can Be Ap-  
plied to Many Types of  
Machines Where a Fluctu-  
ating Load Is Encountered**

By

**Victor A. Hanson**

Chief Engineer,  
Power Transmission Council

ated through a quick acting friction clutch. The clutch permits the loom to slam off quickly without the flywheel being stopped and also utilizes the flywheel in starting the loom.

The design is simple. The energy drive pulley is installed on the loom in place of the regular pulley if the loom is belt operated through a friction or clutch drive or in place of the large gear if the loom has been operated by individual

motor drive and is being converted to group operation. The friction or clutch operation of the loom is essential. However, if a loom is at present operated by tight and loose pulleys it can easily be converted to clutch operation as the energy drives may be obtained equipped with a clutch.

The energy drive was originally developed for the high speed loom where the load pulsations were greatly amplified. Its success is indicated by the fact that a number of mills are installing it in quantity.

In general it has been found that on the new high speed looms that the energy drive provides the following:

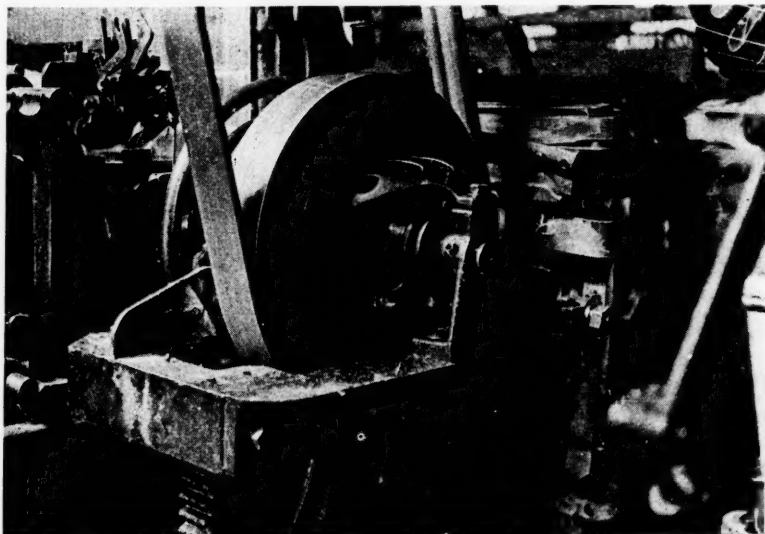
1. The highest obtainable production per loom per hour.
2. Smoother loom operation.
3. Complete utilization of the group principle of operation with tremendous reductions in the cost of drive installation and in the total power cost per yard of cloth produced.

From its high speed loom application the energy drive was developed for use on lower speed looms such as the E Model. Here even greater improvement was noted, such as:

1. In general it makes possible a 10 per cent increase in speed over previous loom speed.
2. It maintains a more constant loom operation than is obtainable with any other type of drive.
3. Produces a higher percentage of production.
4. Reduces amount of seconds.
5. Provides a smoother loom operation.
6. It utilizes the group principle of drive thereby making possible great reductions in drive installation costs and in total power cost per yard of cloth produced.

Results cited above are obtained from the record of more than 3000 looms on which energy drive has been installed. In the case of the application of energy drive to the loom it involved a special problem because of the loom's relatively light construction and the absolute necessity for a quick acting clutch. However, the energy drive principle has large possibilities on many types of machines where a fluctuating load is encountered. It has been used for some time on punch presses, bolt headers, power hammers and other machines of similar power requirements.

**Energy Drive Installation on Model X Loom**  
Operates at average speed of more than  
193 picks a minute





# REDUCED POWER COSTS

## Successful Performance of Gas and Diesel Engines in Two Texas Installations

**T**HE special suitability of gas-electric and Diesel-electric units for giving a community, or an industrial enterprise, control of its own sources of light and power is becoming well recognized in the South. Two recent Texas installations, one for the State Farm Industries near Sugarland and the other for the municipal water works of the city of Gainesville, are typical of many. The former has a gas engine as prime mover, the latter a pair of Diesels. Both plants are regarded as highly successful.

The Sugarland farms comprise several thousand acres and supply a large part of the meat used in the Texas State Prisons, both at Sugarland and elsewhere. They also supply cotton to be made into cloth at other prisons in the State, and furnish brick for all public buildings.

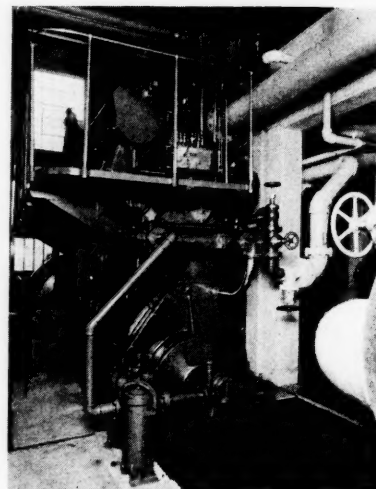
Light for the dormitory in which inmates are housed, light and power for the group of adjacent buildings, including a cannery, a packing house, and a large warehouse, and also light for all the yards within the prison enclosure, which must always be kept brilliantly illuminated at night, make up the first

demand on the generator. Outside the enclosure, and at varying distances up to two miles, are cotton gins, a brick plant, and other work units demanding electric current.

For all these uses, whether of light, power, or refrigeration, current is supplied by a Cooper-Bessemer gas engine of 600 horsepower, running at 277 revolutions a minute and direct-connected to a 2300-volt AC Westinghouse generator. Long-term prisoners, under the supervision of a capable plant superintendent, are chosen to tend the machinery.

Economy in operation is important, because the aim throughout the prison system of Texas is to make each division self-supporting if possible. The Sugarland establishment has a creditable record in this respect.

The waterworks plant at Gainesville has been a subject of interest elsewhere because it was acquired in 1931 as a result of a change in city government. The city-manager plan of government was adopted and plans for improving the economy and service of the water system were discussed. E. J. LaCour, formerly city engineer, now city manager, became convinced that a Diesel engine would afford the best solution to existing difficulties. But he encountered sharp op-



Cooper-Bessemer type LR-6 gas-electric set operated by Texas State Farm Industries

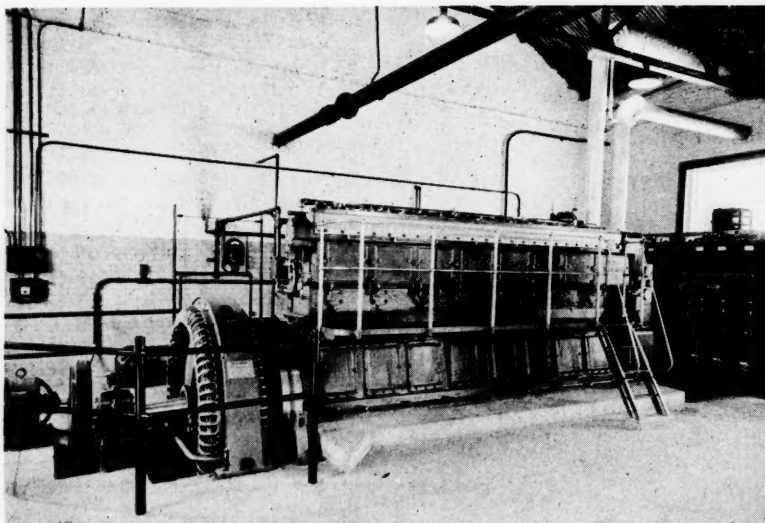
position, including injunction proceedings, and was able to do no more than patch up the existing equipment and improve the management till 1935. By that time the bonded indebtedness had been reduced, a special fund had been created for power-plant improvement, and the way was clear for purchase of one Diesel engine.

The performance of the Diesel was so convincing that now, after two years, a duplicate has been installed. City accountants report a saving of \$6,000 a year in the cost of pumping water. From 3¼ cents for 1,000 gallons, the former specific cost for pumping alone, they find a reduction to 8.24 mills—a saving of about 70 per cent. In addition to this exceptional saving, the community has enjoyed a substantial reduction in the cost of street lighting, which the new installation supplies.

Both of the new engines are of the Cooper-Bessemer "JT" four-cycle, eight-cylinder type, rated 375 H. P. at 327 revolutions, driving 250 K.W. Westinghouse A.C. generators. They will be operated in parallel when occasional peak loads, especially during the summer, require it, though for most of the time one engine will be sufficient and the other will be held in reserve.

The daily pumping output, formerly about a million gallons a day, has been increased by more than 50 per cent. The building in which the power equipment is housed would now be adequate, Mr. LaCour declares, for a half-dozen Diesels and part of the space can be turned to other desirable use.

One of two Cooper-Bessemer type JT-8 Diesel-Electric sets at the Gainesville, Texas, water works





# MONEY AT WORK

## Financing the Continued Advance of Southern Industry

By

**Vance J. Alexander**

President, Union Planters National Bank  
& Trust Co.,  
Memphis, Tenn.

**L**AST year more than \$322,000,000 were invested in new industrial construction. This is approximately double the amount spent in 1935. Since the first of the year, as the MANUFACTURERS RECORD shows, contracts have been let for more than \$100,000,000 in modernizing plants and in the building of new ones. These impressive figures point to one conclusion — that investors have awakened to the manufacturing and distributing advantages present in the South with its vast and varied supply of raw materials, strategic locations, and exceptional transportation facilities.

One of the most important of the various types of industry increasing in the South is the new pine pulp and paper industry. Investment in new and proposed paper mills totals in excess of \$85,000,000 in the past year and a half. Numbered among the proposed mills are those for the manufacture of newsprint from Southern pine, the production of which will keep in the South a good part of the \$20,000,000 annually spent for newsprint by Southern publications. The future of this industry is said to be almost limitless.

Cotton and other textile mill expansions, chemical plants, making of steel products, sewing machines, rubber goods, roofings, food, feed and other activities are numbered in the list of new developments. Many of these are strictly Southern enterprises, financed by Southern capital as evidence of the awakening of Southern people to the countless opportunities in the South. Many new projects and branch plants represent industries formerly located in other sections of the country. Not a few are manufacturers who have deemed it advantageous to transfer their tire manufacturing and distributing facilities to locations in the Southern states.

While capital of outside interests has been employed in many instances, particularly in the establishment by Northern concerns of branch plants in the South, the resources of Southern financing institutions have played their part. At the beginning of the upswing in business, Southern bankers, like others all over the country, were seeking sound investments. Deposits were at an all-time high; new loans at an all-time low. Financial institutions welcomed industry's trek southward and

the opportunities thus presented to put some of the many millions of idle dollars to work. And there is still a large surplus of capital seeking good investment.

Local chambers of commerce and other civic bodies are continually receiving enquiries from distantly located manufacturers as to possible building sites, rental prices, labor conditions, etc. These organizations are cooperating with banks and other business interests towards the

consistent upbuilding of Southern industry. Of significant importance is the fact that many Southern banks have done and are doing an excellent job of advertising, locally as well as nationally, promoting the South's advantages to industry. We have a "commodity" to sell and advertising has done and will do its part in selling it.

Southern capital can be instrumental in the accomplishment of even bigger things by cooperating in every sound and constructive manner to foster the growth of the South's established industries and to attract and bring in as many new enterprises as possible.

## BLEACHING EARTH—A NEW TENNESSEE INDUSTRY

By

**Walter F. Pond**

State Geologist of Tennessee

**B**LEACHING earth, extensively used in the refining of petroleum and vegetable oils, is the latest addition to the minerals industry of Tennessee. The Tennessee Bleaching Clay Corporation has started production in their recently completed modern processing mill at Paris in Henry County, a West Tennessee county long famous for its mining of high-grade pottery clays. This new industry, based largely on preliminary investigations by the Tennessee Division of Geology, Walter F. Pond, State Geologist, Nashville, will use clays of the Porters Creek (Tertiary) formation, a natural resource that has, heretofore, been practically ignored by the clay-mining interests of the region. Production from the new mill will be confined, for the present, to natural bleaching earths particularly suited to petroleum oil refineries. Officials of the new organization are, Mr. J. K. Dick, president; Mr. Sam Kohn, vice-president; and Mr. C. E. Hastings, secretary-treasurer, all of Paris.

The Porters Creek clay being used by the Tennessee Bleaching Clay Corporation has not been previously developed in Tennessee. Studies of the West Tennessee occurrences of Porters Creek clay in 1934 by Geo. I. Whitlatch, assistant geologist of the Tennessee Division of Geology, showed that numerous deposits in this formation had definite oil bleaching possibilities. Subsequent investigations of these Tennessee clays by the U. S. Geological Survey confirmed these findings and called attention to the fact that some of the deposits were even superior in quality to similar bleaching clays mined in Illinois. The Tennessee Bleaching Corporation was organized largely because of the favorable findings of these preliminary studies. Later studies published by Dr. Whitlatch show that Porters Creek clays may also be adapted to the bleaching of cottonseed oil and other vegetable oils. Four cottonseed refineries operating at Memphis constitute a lucra-

### Wide Market for Product in Southern Petroleum and Vegetable Oil Refining

tive potential market for the products of the new mill at Paris, and refineries for peanut, soya bean, corn and other vegetable oils at Louisville, Ky., Cincinnati, O., Atlanta and Savannah, Ga., Oklahoma City, Okla., Dallas, Ft. Worth, and Houston, Texas, and several other Southern cities are also potential markets for the new industry.

The new mill of the Tennessee Bleaching Clay Corp., designed and equipped by the Williams Patent Crusher & Pulverizer Co., St. Louis, Mo., is of the most modern design in which drying, grinding, and classifying is done in a single continuous operation. Grinding is by hammer-mill, and during this process, hot air at temperatures ranging between 800° and 900°F, introduced into the mill under forced draft, partially dries the clay. The ascending currents of hot air carry the particles of ground clay up a long flue to an air separator, drying of the clay being completed during its passage up the flue. Classification of the ground clay is done by centrifugal force in the air separator, which is equipped with a "Cyclone" dust collector for the finest particles of clay. Further grading of the clay, before it goes to storage, can be done in a rotary cloth screen. The product supplied to petroleum refineries has a particle-size distribution of: 1% on 100-mesh, 30% on 200-mesh, and 69% through 200-mesh. Earths for vegetable oil bleaching will be ground to 200-mesh and finer, approximately 43% of the clay particles being less than 300-mesh size. All mill equipment is powered with a 100 horsepower "International" Diesel motor, using fuel oil. Heat supplied to the hammer-mill for drying is generated by an oil-burning kiln. Production by present equipment is between 1½ and 2½ tons of finished earth per hour.

# \$81,817,000 MAY CONSTRUCTION

## AWARDS ARE TOP FOR YEAR

**R**ISING to \$81,817,000 in May, Southern construction contracts reached a new monthly high total for 1937. Awards in May were 6 per cent ahead of the preceding month and represented a gain of over 85 per cent as compared with May a year ago. Work placed under way so far this year amounts to \$348,598,000, a slightly lower figure than the awards in the similar period of 1936.

Public building awards mounted to \$24,161,000, a \$14,000,000 increase over the figure for April. Highway contracts, totaling \$18,507,000, maintained about the same pace as that set in April and showed a substantial advance over May, 1936.

Private building decreased. Dwelling construction, strongly supported by apartment and hotel building and store work, accounted for most of May's private building total of \$17,954,000, which showed a shrinkage of about 31 per cent from April when such work surpassed all its previous levels for any month since the first of last year.

Industrial projects, for which \$15,748,000 in contracts were announced in May, fell almost \$5,000,000 from April's total, but amounted to twice the amount of new plants and improvements undertaken in May of 1936. Among the important awards was that for the \$2,000,000 expansion at the Glenn L. Martin aircraft plant near Baltimore.

National Container Corporation's announcement of final consummation of negotiations for a site at Jacksonville, Fla., and formal award for its proposed \$3,000,000 plant pointed to additional activity in Southern paper mill construction.

## Southern Construction, by States

|                            | First Five Months, 1937 |                               | May, 1937            |                               |
|----------------------------|-------------------------|-------------------------------|----------------------|-------------------------------|
|                            | Contracts<br>Awarded    | Contracts<br>to be<br>Awarded | Contracts<br>Awarded | Contracts<br>to be<br>Awarded |
| Alabama .....              | 10,524,000              | 62,076,000                    | 630,000              | 3,562,000                     |
| Arkansas .....             | 4,213,000               | 11,187,000                    | 1,358,000            | 2,775,000                     |
| District of Columbia ..... | 30,091,000              | 46,785,000                    | 12,726,000           | 9,193,000                     |
| Florida .....              | 33,030,000              | 57,049,000                    | 7,461,000            | 7,938,000                     |
| Georgia .....              | 16,296,000              | 55,532,000                    | 4,695,000            | 8,804,000                     |
| Kentucky .....             | 15,181,000              | 28,396,000                    | 1,973,000            | 4,529,000                     |
| Louisiana .....            | 14,968,000              | 66,815,000                    | 3,850,000            | 12,010,000                    |
| Maryland .....             | 33,293,000              | 111,442,000                   | 6,058,000            | 10,393,000                    |
| Mississippi .....          | 16,395,000              | 68,484,000                    | 3,858,000            | 8,383,000                     |
| Missouri .....             | 29,012,000              | 81,334,000                    | 8,102,000            | 7,474,000                     |
| North Carolina .....       | 22,883,000              | 78,318,000                    | 4,748,000            | 4,350,000                     |
| Oklahoma .....             | 13,661,000              | 31,031,000                    | 7,601,000            | 5,468,000                     |
| South Carolina .....       | 8,565,000               | 49,132,000                    | 1,786,000            | 15,521,000                    |
| Tennessee .....            | 16,137,000              | 54,709,000                    | 1,395,000            | 6,847,000                     |
| Texas .....                | 58,292,000              | 197,101,000                   | 12,707,000           | 27,640,000                    |
| Virginia .....             | 19,242,000              | 72,713,000                    | 1,994,000            | 3,845,000                     |
| West Virginia .....        | 6,815,000               | 60,543,000                    | 875,000              | 2,858,000                     |
| <b>Total .....</b>         | <b>\$348,598,000</b>    | <b>\$1,132,647,000</b>        | <b>\$81,817,000</b>  | <b>\$141,590,000</b>          |

An early start on the \$5,000,000 newsprint mill in East Texas was also indicated as reports circulated on a possible definite location, as well as on a \$1,500,000 enlargement of the recently completed Houston plant of the Champion Paper and Fibre Co.

Prospective industrial awards in May totaled \$30,229,000. About one-half a million dollars of filling station work is included in this figure. This is under previous months' figures and the tremendous industrial expansion prominent during the past six months or so. However, there is a long list of proposed plants, such as the \$1,000,000 bottling unit at Louisville for Joseph E. Seagram and Sons Co., a \$1,000,000 refinery at Portland, Tex. for Sinclair Refining Co., a \$700,000 cigarette plant at Richmond, Va. for Phillip Morris and Co. Ltd., a \$2,125,000 addition to the Smith's Bluff, Texas refinery of the Pure Oil Co., the \$500,000 new unit for Owens-Illinois Can Co. at St. Louis, and the \$500,000 oil tool manufactory for Houston by Bryon-Jackson Co.

Booming foreign and coastal trade has stimulated the number of improvements proposed for seacoast cities. The Texas ports of Corpus Christi, Houston, Beaumont, and Brownsville joined with Gulfport, Miss., Mobile, Ala., and Beaufort, S. C., in planning additional facilities, while the Inland Waterways Corp. announced a \$1,500,000 expansion program for the Federal barge system on the Mississippi River. Most important among the announced plans of shipping concerns was that the American Scantic Lines, Baltimore, will spend \$1,000,000 for reconstructing and enlarging capacities of seven ships. Large sums are already being spent by other lines for reconditioning vessels.

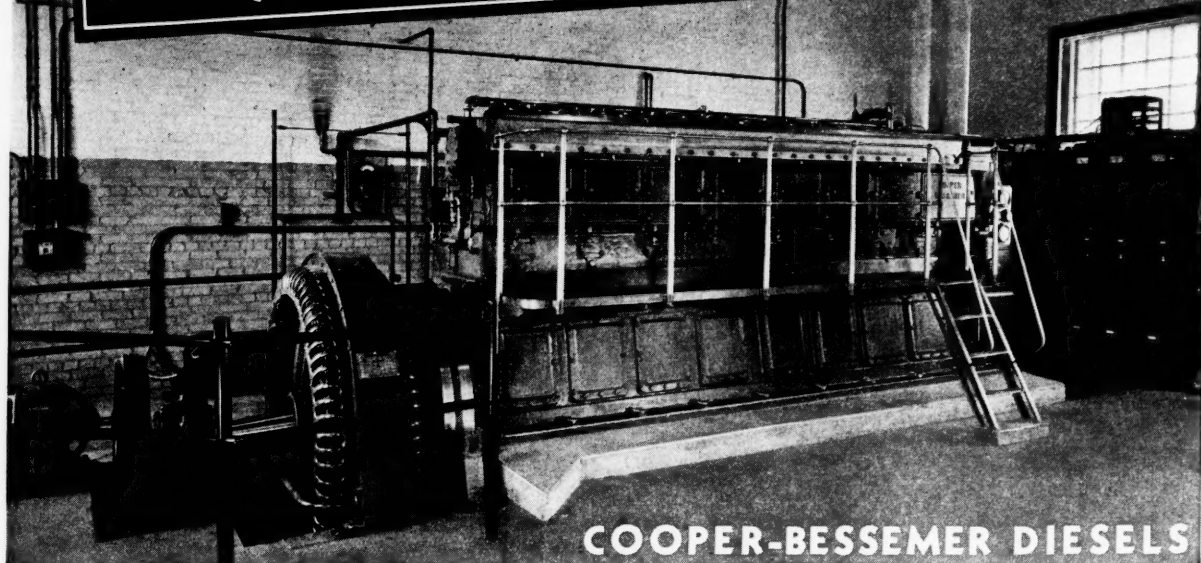
Great engineering projects active in the South during the month were Mississippi's Sardis Dam, previously received bids for which were rejected as too high by Federal engineers; the \$7,000,000 bridge to span the Mississippi River at Baton Rouge, La.; a \$531,000 outfall sewer at

(Continued on page 44)

## Southern Construction Activity

|  | First Five Months, 1937 |                               | First Five Months, 1936 |                               | May, 1937            |                               | May, 1936            |                               |
|--|-------------------------|-------------------------------|-------------------------|-------------------------------|----------------------|-------------------------------|----------------------|-------------------------------|
|  | Contracts<br>Awarded    | Contracts<br>to be<br>Awarded | Contracts<br>Awarded    | Contracts<br>to be<br>Awarded | Contracts<br>Awarded | Contracts<br>to be<br>Awarded | Contracts<br>Awarded | Contracts<br>to be<br>Awarded |
| <b>GENERAL BUILDING</b>                    |                         |                               |                         |                               |                      |                               |                      |                               |
| Apartments and Hotels ...                  | \$15,342,000            | \$23,827,000                  | \$10,614,000            | \$11,939,000                  | \$3,442,000          | \$4,139,000                   | \$2,035,000          | \$1,540,000                   |
| Association and Fraternal ..               | 1,226,000               | 2,748,000                     | 409,000                 | 1,080,000                     | 595,000              | 680,000                       | 245,000              | 100,000                       |
| Bank and Office .....                      | 4,457,000               | 11,822,000                    | 2,404,000               | 1,843,000                     | 611,000              | 865,000                       | 1,256,000            | 432,000                       |
| Churches .....                             | 1,651,000               | 5,889,000                     | 1,110,000               | 3,727,000                     | 609,000              | 997,000                       | 170,000              | 641,000                       |
| Dwellings .....                            | 40,741,000              | 26,914,000                    | 15,516,000              | 12,327,000                    | 9,362,000            | 4,818,000                     | 3,751,000            | 1,658,000                     |
| Stores .....                               | 14,753,000              | 18,764,000                    | 5,185,000               | 8,214,000                     | 3,335,000            | 4,275,000                     | 742,000              | 2,357,000                     |
|  | <b>\$78,170,000</b>     | <b>\$89,964,000</b>           | <b>\$35,238,000</b>     | <b>\$39,130,000</b>           | <b>\$17,954,000</b>  | <b>\$15,774,000</b>           | <b>\$8,197,000</b>   | <b>\$6,748,000</b>            |
| <b>PUBLIC BUILDINGS</b>                    |                         |                               |                         |                               |                      |                               |                      |                               |
| City, County, Government ..                | \$44,661,000            | \$126,719,000                 | \$55,993,000            | \$101,403,000                 | \$21,372,000         | \$25,415,000                  | \$7,413,000          | \$14,828,000                  |
| Schools .....                              | 17,352,000              | 65,013,000                    | 29,479,000              | 44,056,000                    | 2,789,000            | 12,484,000                    | 2,526,000            | 5,035,000                     |
|  | <b>\$62,013,000</b>     | <b>\$191,732,000</b>          | <b>\$85,472,000</b>     | <b>\$145,459,000</b>          | <b>\$24,161,000</b>  | <b>\$37,899,000</b>           | <b>\$ 8,197,000</b>  | <b>\$ 6,748,000</b>           |
| <b>ROADS, STREETS and<br/>PAVING .....</b> | <b>\$69,621,000</b>     | <b>\$388,855,000</b>          | <b>\$101,321,000</b>    | <b>\$157,228,000</b>          | <b>\$18,507,000</b>  | <b>\$40,949,000</b>           | <b>\$15,643,000</b>  | <b>\$20,122,000</b>           |
| <b>INDUSTRIAL and ENGINEERING</b>          |                         |                               |                         |                               |                      |                               |                      |                               |
| Drainage, Dredging and<br>Irrigation ..... | \$11,750,000            | \$52,707,000                  | \$7,242,000             | \$87,110,000                  | \$1,831,000          | \$7,163,000                   | \$697,000            | \$7,169,000                   |
| Filling Stations, Garages,<br>etc. ....    | 2,629,000               | 3,027,000                     | 2,068,000               | 3,575,000                     | 673,000              | 515,000                       | 228,000              | 305,000                       |
| Industrial Plants .....                    | 108,503,000             | 364,851,000                   | 105,085,000             | 225,038,000                   | 15,748,000           | 30,229,000                    | 8,014,000            | 35,609,000                    |
| Sewers and Waterworks ..                   | 15,912,000              | 41,511,000                    | 19,078,000              | 41,704,000                    | 2,943,000            | 9,061,000                     | 1,381,000            | 7,420,000                     |
|  | <b>\$138,794,000</b>    | <b>\$462,096,000</b>          | <b>\$133,473,000</b>    | <b>\$357,427,000</b>          | <b>\$21,195,000</b>  | <b>\$ 46,968,000</b>          | <b>\$10,320,000</b>  | <b>\$50,803,000</b>           |
| <b>Total .....</b>                         | <b>\$348,598,000</b>    | <b>\$1,132,647,000</b>        | <b>\$355,504,000</b>    | <b>\$699,244,000</b>          | <b>\$81,817,000</b>  | <b>\$141,590,000</b>          | <b>\$44,099,000</b>  | <b>\$97,536,000</b>           |

*So Satisfactory...  
they've ordered another!*



**COOPER-BESSEMER DIESELS**

The engine shown above is **SAVING \$6,000 PER YEAR** on the cost of pumping water. In addition, there is a substantial saving on the cost of street-lighting. No wonder the City of Gainesville, Texas, is "sold" on Cooper-Bessemer *economy!*

Wouldn't an equivalent saving on **YOUR** present power bill—**70%**—look mighty good to you? Even a **50%** cut in the cost should be worth looking into. Let us make a "Savings-Survey" for you! No charge.



The City of Gainesville, Texas, has ordered a second Cooper-Bessemer Diesel-electric generating set, identical with the one pictured above. Both engines are Type JT-8's, rated 375 H. P. at 327 r. p. m., driving 250-K.W. generators. Ask us about our Vertical engines from 35 to 1250 H. P. — and the Horizontal from 25 to 110 H. P.

## THE COOPER-BESSEMER CORPORATION

25 West 43rd Street New York City  
Mills Building Washington, D. C.  
Esperson Building, Houston, Texas  
Mt. Vernon, Ohio—PLANTS—Grove City, Pennsylvania  
640 East 61st Street 201 East 1st Street  
Los Angeles, Calif. Tulsa, Oklahoma  
631 Spring Street Shreveport, La.  
53 Duncan Street Gloucester, Mass.  
Magnolia Building Dallas, Texas  
Gas and Power Equipment Company, Birmingham, Alabama



(Continued from page 42)

Miami Beach, Fla.; Baltimore's \$1,270,000 Howard Street extension project, now held in abeyance because of objections from local labor circles; Washington's \$342,000 chain bridge reconstruction project, and the \$3,383,000 Dam 25 at Cap Au Gris, Mo.

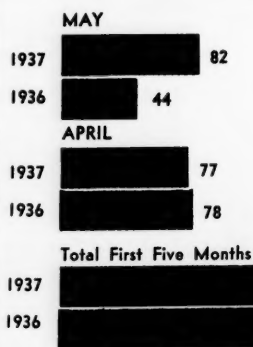
Many communities, feeling the pressure of increased housing demands, are now the scene of extensive residential construction. While most of the work is being undertaken in metropolitan areas surrounding the large cities, some is the result of industrial plant construction at smaller towns. Georgetown, S. C., where the Southern Kraft Corporation is now completing a huge paper plant, is the scene of much dwelling construction. J. C. Long, Georgetown, and others are backing the work.

Washington, D. C., Baltimore, Md., St. Louis, Mo., Greensboro, N. C., Jackson,

Miss., Dallas and Houston, Tex., Key West and Miami, Fla., and Tulsa, Okla., are localities where the speculative

## Contracts Awarded in the South

(In Millions of Dollars)



## Representative Projects in the South Last Month

### Contracts Awarded

|  |            |
|--|------------|
| D. C., Washington—District Commissioners Bridge; Tuller Construction Co., Red Bank, N. J., (low bidder)  | \$312,000  |
| D. C., Washington—District Commissioners Junior High School addition; John W. Hunt Co. (low bidder)  | 180,000    |
| D. C., Washington—District Commissioners Paving; W. F. Brenizer Co. (low bidder)   | 137,000    |
| D. C., Washington—Gellman Construction Co. Apartment   | 200,000    |
| D. C., Washington—Clarence W. Gosnell Inc. Dwellings; Monheight Construction Co.   | 100,000    |
| D. C., Washington—Judd and Detweiler Inc. Print shop; Skinker and Garrett, Contr.  | 125,000    |
| D. C., Washington—A. W. Mellon Charitable and Educational Fund   |            |
| Museum; Marc Eidlitz and Sons, Inc., New York, Contr.  | 10,000,000 |
| Fla., Ft. Lauderdale—Charellen Corp. Hotel addition; O'Neill-Orr Building Corp., Miami Beach (low bidder)  | 232,000    |
| Fla., Jacksonville—Cohen Brothers Store improvements; Jacksonville Refrigeration Co., George Doro Fixture Co., Lamson Co., Contrs.   | 100,000    |
| Fla., Miami Beach—Croyden Arms Apartment Hotel; John B. Orr, Inc. (low bidder)   | 196,000    |
| Fla., Tampa—W. T. Grant and Co. Store; G. A. Miller Inc., Contr.   | 200,000    |
| Fla., West Palm Beach—George T. Miller Hotel; Cleary Brothers Construction Co., Contr.   | 300,000    |
| Ky., Lexington—City Junior High School; Gilson-Taylor Inc., Contr.   | 277,000    |
| La., Baton Rouge—Louisiana Highway Commission Bridge; Kansas City Bridge Co., Kansas City Mo., Bethlehem Steel Co., Bethlehem Pa., Uvalde Construction Co., Dallas, Tex., Steel Construction Co., Birmingham, Ala. (low bidders) | 7,000,000  |
| La., Lake Charles—Swift and Co. Packing plant; A. Farnell Blair, Contr.  | 275,000    |
| Md., Baltimore—City Bridge; Kaufman Construction Co., Philadelphia (low bidder)  | 1,270,000  |
| Md., Baltimore—Johns Hopkins Hospital Nurses Home addition; Consolidated Engineering Co., Contr.   | 195,000    |
| Md., Baltimore—Montgomery Ward and Co. Storage building; Sollitt Construction Co., Inc., South Bend, Ind., Contr.  | 110,000    |
| Md., Glendale—District Commissioners Tuberculosis building; T. Calvin Owens, Bethesda (low bidder)   | 116,000    |
| Md., Middle River—Glenn L. Martin Co. Plant addition; C. W. Schmidt, Baltimore, Contr.   | 2,000,000  |
| Miss., Jackson—I. C. Garber and Sons, Contr.   | 250,000    |
| Miss., Sardis—U. S. Engineer Dam; Hooper Construction Co., Bunnell, Fla. (low bidder)  | 670,000    |
| Miss., Vicksburg—Bureau of Public Roads Viaduct; Kellher Construction Co., Dallas, Tex., Contr.  | 130,000    |
| Mo., Cap Au Gris—U. S. Engineer Dam; United Construction Co., Winona, Minn., Contr.  | 3,780,000  |
| Mo., Jefferson Barracks—Veteran's Administration Dining Hall; G. S. Alberici, St. Louis, Contr.  | 150,000    |
| S. C., Anderson—Treasury Department Post Office and courthouse; Beers Construction Co., Atlanta, Ga., Contr.   | 167,000    |
| Tex., Fort Worth—Treasury Department Narcotic Farm; James I. Barnes, Springfield, Mo. (low bidder)   | 268,000    |
| Tex., Houston—City Bridge; Russ Mitchell Inc., Contr.  | 226,000    |
| Tex., Houston—Houston Chronicle Plant addition; T. B. Hubbard Construction Co., Contr.   | 750,000    |
| Tex., Houston—Lone Star Cement Co. Silos, Pack House; Nicholson Co., New York, Contr.  | 200,000    |

### Proposed Construction

|   |           |
|---|-----------|
| Ala., Mobile—Ozark Corp. Plant  | 200,000   |
| D. C., Washington—Bureau of Public Roads Blue Ridge Parkway work  | 4,500,000 |
| D. C., Washington—Meadowbrook, Inc. Apartment; Robert O. Scholz, Archt.                                     | 175,000   |
| D. C., Washington—Riverside Apartment Co. Apartment; George T. Santmyers, Archt.                            | 100,000   |
| D. C., Washington—J. B. Shapiro Co., Inc. Dwellings   | 121,000   |
| Fla., Miami—George J. Burckell Dwellings  | 200,000   |
| Fla., Miami—H. M. N. Muhle Hotel; Lester Avery, Archt.  | 450,000   |
| Ga., Atlanta—City Waterworks improvements   | 1,100,000 |
| Ga., Augusta—City Waterworks  | 400,000   |
| Ga., Reidsville—State Prison industrial plant   | 500,000   |
| Ky., Louisville—Louisville and Jefferson County Air Board Runways   | 300,000   |
| Ky., Louisville—Joseph E. Seagram and Sons Co. Bottling plant   | 1,000,000 |
| La., Baton Rouge—State Office building; Edward F. Neild, Shreveport, Archt.                                 | 1,000,000 |
| La., Lafayette—City City Hall—Favrot and Reed, New Orleans, Archts.   | 115,000   |
| La., New Orleans—Charity Hospital Main building; Weiss, Dreyfous and Seiferth, Archts.                      | 5,000,000 |
| Md., Carderock—Navy Department Ship model testing plant   | 3,500,000 |
| Md., Caliborne—Caliborne-Annapolis Ferry Co. Ferry improvements   | 500,000   |
| N. C., Charlotte—City Water improvements; George S. Rawlins, Engr.  | 1,000,000 |
| Okla., Muskogee—Pure Oil Co. Refinery improvements  | 650,000   |
| Okla., Norman—University of Oklahoma Petroleum Engineering and Geology Building                             | 600,000   |
| Okla., Oklahoma City—State Fair buildings   | 2,320,000 |
| S. C., Columbia—Providence Hospital Building; Charles C. Hook, Charlotte, N. C., Father Michael, Archts.    | 250,000   |
| Tenn., Memphis—City sub-station equipment   | 200,000   |
| Tenn., Memphis—Methodist Hospital Addition  | 250,000   |
| Tex., Austin—Southwestern Bell Telephone Co. Telephone extensions   | 750,000   |
| Tex., Beaumont—Beaumont City Lines, Inc. Buses  | 200,000   |
| Tex., Corpus Christi—Nueces County Navigation Commission Port expansion; Robert J. Cummings, Houston, Engr. | 400,000   |
| Tex., Dallas—Southern Methodist University Library  | 450,000   |
| Tex., Houston—DeWard C. Baird Bakery; A. C. Finn, Archt.  | 100,000   |
| Tex., Odessa—Ector County Courthouse; Elmer G. Withers Architectural Co., Inc., Ft. Worth, Archt.           | 200,000   |
| Tex., Portland—Sinclair Refining Co. Refinery   | 1,000,000 |
| Tex., Smiths Bluff—Pure Oil Co. Refinery  | 2,125,000 |
| Va., Norfolk—City Council Street improvement  | 300,000   |
| Va., Petersburg—State College for Negroes Building; J. Binford Walford, Richmond, Archt.                    | 225,000   |
| Va., Richmond—Phillip Morris & Co., Ltd. Cigarette plant; Francisco and Jacobus, New York, Archts.          | 700,000   |





124th Field Artillery Armory, Chicago, Ill., roofed with Barrett Steep Roof Pitch by Luse-Stevenson Company, Inc. Architect: Perkins, Chatten and Hammond, and C. Herrick Hammond, supervising architect.

## BONDED COAL-TAR PITCH AND FELT ROOFS FOR *Steep Roof* BUILDINGS

The development of Barrett Steep Roof Pitch has made coal-tar pitch and felt and gravel roofs possible on many types of buildings hitherto denied this superior type of roof construction.

Barrett Steep Roof Pitch combines with unusual stability all the unmatched waterproofing and weatherproofing qualities of coal-tar pitch. Experience has demonstrated that it will not bleed or slide at the highest temperatures to which roofs are subjected, that it is unharmed by the actinic rays of the sun, and that it will not crack or lose bond during extreme cold. Its use provides the most durable of all

weathering surfaces — crushed slag or gravel, or mineralized aggregate available in a variety of colors.

Roofs constructed of Barrett Steep Roof Pitch and Barrett Specification Felt, applied according to Barrett Specifications by Barrett Approved Roofers, are now bonded for 20 years.

Before you roof or reroof get the details about Barrett Steep Roof Pitch. Write for our architects' and engineers' reference manual, or see your local Barrett Approved Roofer. You'll find his address in the Classified Telephone Directory under "Roofers."

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# STEEP ROOF PITCH

# IRON, STEEL AND METAL MARKET

**W**IDESPREAD strikes continue to plague the steel industry in the face of the Wagner Act that its sponsors claimed would prevent such obstructions to progress and losses to workers. The CIO's Steel Workers Organizing Committee and labor agitators, however, are using the law to their advantage.

Despite the strike situation, the steel industry has been operating over 91 per cent of capacity. Ample warnings are given that labor unrest, mounting taxes and unbalanced Federal budget are threatening the recovery movement. As Eugene G. Grace, president of the Bethlehem Steel Company and retiring president of the American Iron and Steel Institute declared at its recent annual meeting, "We have come to a point in national economics where government expenditures are of grave concern to all, regardless of party, and where they threaten the progress of the nation's economic advance."

## Billion Tons of Steel in Use for First Time

The total tonnage of steel in use in this country, in all forms, has topped the billion-ton mark for the first time in history. The total represents an average of 17,500 tons in use for every person in the country. If all the steel now in use were to be sold as scrap at present prices its value would approximate \$18,500,000,000, or a sum greater than the entire stock of money in the United States.

## Southern Steel Activity

Operation is at a 7-year peak in the

Southern Steel industry. The Tennessee Coal Iron and Railroad Company's tonnage for the first four months of this year was 30 per cent over the corresponding period of 1936. Prices of No. 2 foundry iron will remain at \$20.38 a ton for the third quarter. Production of pig iron in the Alabama district is at a high point. Seventeen furnaces of the Tennessee Coal Iron and Railroad Company, Sloss-Sheffield Steel & Iron Co., Woodward Iron Company, and Republic Steel are active.

## Freight Car Orders Highest Since 1936

More new freight cars were on order May 1 than on any corresponding date since 1926. Class I railroads had 345 steel locomotives on order, the highest since May, 1930. The Central of Georgia Railroad is spending \$1,600,000 for equipment and has ordered 100 box cars from the American Car & Foundry Co., and 500 from the Pullman Standard Car Manufacturing Company and the Bethlehem Steel Company is to build five passenger cars and three express cars.

The War Department let contract to the Bethlehem Shipbuilding Corporation for three ships for the Panama Railroad Company at a cost of \$12,012,000.

## New Steel Units

Steel products plants are under way in Alabama and Maryland at a cost of over \$53,000,000. Ground was broken at Pittsburgh for the new \$45,000,000 Irvin works of the Carnegie-Illinois Steel Company, subsidiary of the U. S. Steel Corporation. Employment will be provided for more than 4,000 men and the plant is to turn out 600,000 tons of steel annually. The American Steel and Wire Company, an-

other subsidiary of the U. S. Steel Corporation is reported to expend \$4,000,000 on rehabilitation of plant facilities at the company's Cuyahoga works. The principal output consists of rods, wire, cold rolled strip and stainless steel.

## Fabricated Structural Steel

Bookings of fabricated structural steel during the first four months of 1937 were 27 per cent larger and shipments 20 per cent larger than for the same period of last year, reports the American Institute of Steel Construction. With 148,152 tons booked in April, the total for the four months was 609,989 tons while shipments were 136,042 tons in April and the total for the four months was 481,167 tons.

New orders for fabricated steel plate declined during recent weeks but are still higher than the corresponding orders for the corresponding period of the last several years. The total orders for the first four months of 1937 were 178,432 tons, 40 per cent higher than for the first four months of 1936 and 184 per cent above the same period in 1935.

## Hardware Sales Up

The hardware trade is planning for better sales than were expected at this time last year with May business above that of the preceding months of 1937. The rate of increase for the coming months is estimated by hardware wholesalers at 12½ per cent over the last year and in some lines 20 to 25 per cent, according to Hardware Age.

## Scrap and Pig Iron Consumption

Consumption of iron and steel scrap in the United States last year amounted to 36,469,000 tons, an increase of 38 per cent over 1935. The total consumption of pig iron was 29,778,000 tons or 44 per cent above the previous year. In Southern furnaces 3,322,000 tons of scrap and 2,993,000 tons of pig iron were consumed in 1936. Alabama and Maryland were the leading producers of pig iron in the South.

Production of hot rolled iron and steel in the South in 1936, according to the American Iron and Steel Institute, amounted to 4,620,000 tons, or a gain of 31 per cent over 1935. Of the 1111 establishments in the United States engaged in structural and metal work with an output of \$160,762,000, as of the Census of 1935, 197 establishments were in the South, and the value of their production was \$28,060,000.

## Copper and Tin Demand

Copper and tin continue to be in strong demand with higher foreign prices than those prevailing in the domestic market. Lead producers report considerable demand and zinc remains unchanged. With automobiles, tin can and refrigerator manufacturers active, new high records of consumption of sheet, strip-steel and tin plate have been set. The Reynolds Metals Co. is experiencing new record production at its two Louisville plants which are operating at capacity, its plant manufacturing aluminum powder for paint has been running 24 hours a day.

## PROMPT DELIVERIES FROM STOCK (Standard Sizes)



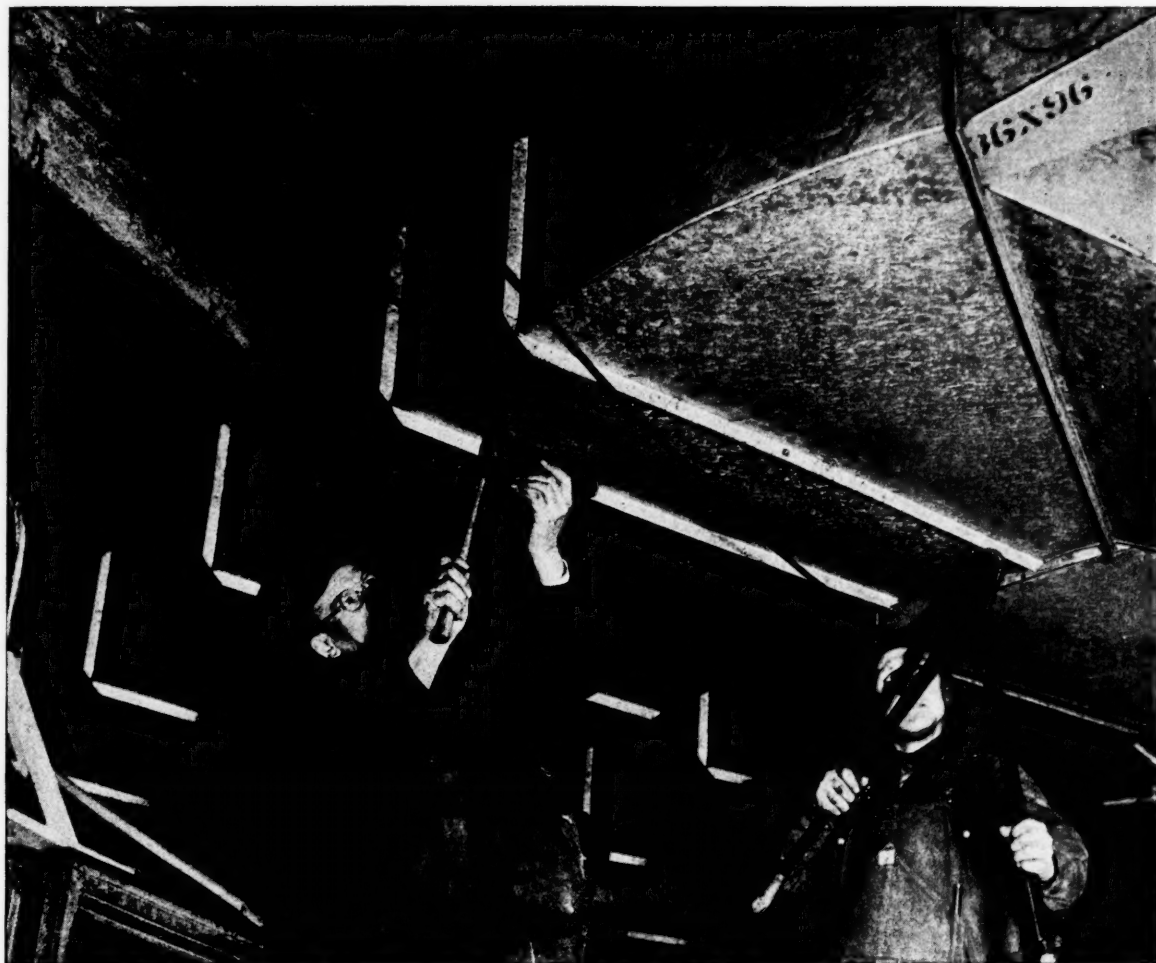
## ORIOLE GALVANIZED STEEL SHEETS

Flat-Corrugated-Roofing

THE EASTERN ROLLING MILL CO.

BALTIMORE, MARYLAND

District Office, Petroleum Bldg., Houston, Tex.



## Basis for high-grade sheet-metal work

**I**N any sheet-metal work, what are the elements that contribute to a high-grade finished job? Care and skill throughout fabrication—in laying out, cutting and forming. But highly important, also, in determining good work is good material.

It is essential to have steel sheets that form easily, that don't scale when seamed. Sheets with a clean appearance, with bright, large, even spangles. Sheets that are flat, and accurately sheared when you receive them. Sheets with

an even, full-weight coating of high-grade zinc.

Bethlehem makes such sheets. They will help you turn out jobs that leave you fully satisfied that your workers have been able to put their best foot forward.

Try Bethlehem Sheets on your next important job—sheets of high-quality open-hearth steel or sheets of rust-resisting Beth-Cu-Loy. They'll clear the way for turning out, at low cost, a fine-appearing installation—the kind that brings more business.

BETHLEHEM STEEL COMPANY. General Offices: Bethlehem, Pa. District Offices: Albany, Atlanta, Baltimore, Boston, Bridgeport, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Hartford, Honolulu, Houston, Indianapolis, Kansas City, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, Portland, Ore., Salt Lake City, San Antonio, San Francisco, St. Louis, St. Paul, Seattle, Syracuse, Toledo, Washington, Wilkes-Barre, York. Export Distributor: Bethlehem Steel Export Corporation, New York.

# BETHLEHEM STEEL COMPANY





# LUMBER NEWS

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## OF THE MONTH

### Lumber Production Up

**T**HE output of lumber during May was above the production of May, 1936. Shipments for the month have been greater but new orders less than last year.

Weekly reports of the Southern Pine Association indicate that orders in May ranged from 19 per cent below to 3 per cent above the corresponding weeks of last year; shipments from 1 per cent to 16 per cent below, while production ranged from 3 per cent to 8 per cent above the like weeks in May, 1936.

Orders on hand May 22 at 120 reporting mills amounted to 80,353,000 feet. Stocks at 114 mills aggregated 390,962,000 feet, or 83 per cent of normal and 2 per cent below the same date a year ago.

At the recent convention in Jacksonville of the Southern Cypress Manufacturers Association, C. M. MacPherson, Palatka, and his entire staff were re-elected. Three new members were added to the executive group—J. S. Foley, Foley, Fla., second vice president, and H. A. J. Evans, Jacksonville and J. C. O'Rourke, Foley, directors. Elected for an additional year were A. G. Cummer, Jacksonville, first vice president; E. G. Swartz, Perry Fla., treasurer; T. M. True, secretary, and B. R. Ellis, Jacksonville, consulting representative.

### Sawmilling to Continue Major Forest Industry of the South

**T**HE nationwide forest survey conducted by the United States Forest Service to determine the supply, rate of growth and extent of use of forest products is developing valuable facts. In inventorying the timber stand of the South, the Southern Forest Experiment Station, New Orleans, is also making a study of the forest industries of the Southern states. Because of the recent rapid expansion of the pulp and paper industry of the lower South and the growing competition for raw materials from its forests, the information contained in the latest report, "Saw Mills of the Lower South," is of timely interest. In this progress report by Captain I. F. Eldredge, Regional Survey Director, it is pointed out that in this area, the manufacture of lumber ranks first among forest industries. Present indications are that sawmilling will continue to be the major forest industry in the South, even with the increase in manufacture and use of other products pulp, paper, ply-wood, and cellulose, and the like.

Following the inflow of large mills in the South there was in the years after 1915, a noticeable growth in the number of small saw mills, which took up milling where the large ones had cut over the heavier timber and moved on. These small

mills put out slack staves, handle stock, cross-ties, and other non-lumber commodities. In 1934 and 1935 there were 8,112 mills in the area surveyed, which included southern South Carolina, all of Georgia, Florida, Alabama, Louisiana, and all but a small sector of northwestern Arkansas, portions of eastern Oklahoma, and of Texas.

Mills were classified for purposes of survey according to maximum annual production of species. All mills cutting at least 50 per cent of pine were classed as pine mills. All those cutting at least 50 per cent cypress were classed as cypress mills. To be classed as a hardwood mill, however, plants were required to show more than 50 per cent of total production in hardwood species. All mills of 40,000 board feet capacity per day and up were classed as stationary mills. Pine mills of from 20,000 to 39,000 board feet capacity per day generally stay at one location for a long time, but some are frequently moved. Mills of daily capacity of 19,000 board feet or less, are easily moved and may be classed as portable. A considerable number in this group are actually fixed mills, though, since they are operated for strictly local needs. The importance of the small mills, numbering 7,285 in the area surveyed, the discontinuance of operations by many of the large mills. In Louisiana information from small mill operators shows they moved at least once during the period 1933-35.

Large mills, of 40,000 board feet daily capacity, comprising but 2 per cent of the total number of mills, cut 36 per cent of the pine lumber in the area. The small mills, 92 per cent of the total number of pine mills, cut 47 per cent of the pine. Of hardwood cut, 47 per cent is produced by the large mills, 30 per cent by the medium sized and 23 per cent by the small mills. Of 47 cypress sawmills 23 are located in Florida, 18 in Louisiana, 5 in Arkansas, and one in Missouri. Of these, the large mills cut 68 per cent of the total cypress produced in the long-leaf slash-pine region, while second class mills cut 17 per cent, and small mills only 15 per cent.

While nearly one-half of the number of mills have two or more types of saws, planers, and dry-kilns only 2 per cent, or about 800, have complete equipment, including resaws, gang-saws, planers, band saws, and so on. Mills using circular saws total 68 per cent of all mills, or about 5,500; 32 per cent have band saws, 62 per cent have planers; 44 per cent have dry-kilns; 16 per cent have resaws, and but 5 per cent have gang saws. Complete equipment is not absolutely necessary to profitable operation of a saw mill. Small portable mills may be set up to cut from several thousand to several million board feet of lumber at a "set" and can be operated economically for from a few weeks to a working year, the latter limited only by the weather. These mills generally ship rough timber to concentrating yards for planing, surfacing and treatment. In the lower South there are over 1,000 of these yards, not including large saw mills acting in this capacity.

In bunching timber in woods yards for

transportation by rail and truck to the mill 67 per cent of all mills use mules or oxen only, while 23 per cent use animals and tractors, gas or steam-skidders.

From woods yards to mill pond or mill deck, logs are moved by truck alone by 5,700 mills, or over 60 per cent, while an additional 2,028 mills use a combination of trucks and other equipment. Of all mills using trucks only, 24 per cent are second-class mills; 6 per cent large mills. Logging railroads are used by 11 per cent of all mills, or about 890. Most of the large mills use a combination of trucks and rail, hauling logs distances from 40 miles to 150 miles by common carrier.

### 5,000 Uses of Wood

Over 200,000 articles are made from wood, as a raw material for which industry has 5,000 uses, the Department of Commerce reports. Among the wide variety of these articles are clothing, linoleum, ply-wood (stronger in ratio to its weight than steel), paper, innumerable molded wooden articles, ranging from art objects to kitchen ware, plastics, and fuel for internal combustion engines.

The report of the Department points out that our forests are actually growing faster than we are using them, in spite of the ravages of storms, pests, and forest fires, and the improved methods of cutting timber. Employed in the production of lumber alone are 200,000 men, while the processing and fabricating plants dependent on wood employ many thousands more. Estimates of the total value of the goods made from wood in the United States range as high as \$4,000,000,000, though a large part of this value is added through manufacture.

### Fireproofed Wood for Construction Purposes

United States Senate report, No. 184, on the "Morro Castle" disaster, recommends the elimination of woodwork on passenger vessels, and Senate Bill 1916 aims to carry out the provisions of the report. This is regarded in lumber circles as offering a challenge to the industry to purge itself of the status of "standpaters" afraid to acknowledge the weaknesses of its product and unwilling to meet the challenge of producing non-combustible materials. More than a year ago the Underwriters' Laboratories approved fireproofed wood as permanently non-combustible, and on every large passenger ship built since 1930, it is said that fireproofed wood has been used. With a product recognized by fire insurance companies, the lumber industry should be in a position to develop a permanent market for non-combustible construction materials. Bearing this in mind, it is likely that the industry will offer stiff opposition to the passage of the bill that would outlaw the use of wood on American ships.





● The price-tag does not tell you how much a tire *really* costs. It gives you only the purchase price, and is unimportant. The real cost of any tire can never be determined until its full mileage is run. Then only can you arrive at a true basis of comparison.

Recognizing these fundamentals, General truck tires are built stronger—to wear longer, and give better service

over a greater period of time.

It costs more to build a General tire because of the way it is built. Thousands of truck operators know it costs less to use Generals because of the way they perform. Your local General Tire dealer is ready to offer you the benefit of his factory training and practical truck tire knowledge. He may be able to reduce your tire costs materially.

**THE GENERAL TIRE & RUBBER CO. • AKRON, O.**

*In Canada: The General Tire & Rubber Co. of Canada, Ltd., Toronto, Ontario*

**STRONGER**—All plies are *full* plies anchored at the bead—no floating “breaker strips”—every inch and every ounce is there for just one purpose—to produce more miles and a lower cost for you.

**COOLER**—They flex uniformly without that heat-producing “hinging action” of ordinary breaker-strip tires. Heat kills the life of cords and cuts down the miles in a tire. Generals are *cool*—that’s why they run more miles at a lower cost for you.

**“COMPACT RUBBER”**

**TREADS**—All tires stretch due to fatigue in the fabric, but Generals, having no idle, half-way plies, stretch least of all. The tread is kept compact and compressed against the road—that’s why it produces more miles and reduces your cost.

**THE TRACTION  
TREAD**

**THE  
HIGHWAY**

**THE COMMERCIAL  
DELIVERY**

**THE CLEATED  
TRACTOR**

**THE  
JUMBO**

**THE  
ALL-GRIP**



One of the most complete lines in the business—each tire built to give you more miles for less money

**GENERAL TRUCK TIRES**

# GOOD ROADS AND MOTOR TRANSPORT

## More Motor Vehicles in Use

Registrations Top All Preceding Figures With Motor Truck Transportation Reaching New High Point in the South

**M**MOTOR vehicles reached an all-time high in 1936 with an increase of 2,000,000 over 1935. More than one-fourth of the 28,221,000 registrations in the United States are in the South.

Registration receipts and other fees cost the motor vehicle owners of the country \$359,783,000 in addition to the heavy gasoline taxes of over \$880,000,000 they paid to operate their motor cars and trucks.

Of the total motor vehicle registration of the South, motor trucks have been increasing in number. Motor truck transportation in the South in 1936 reached a new high with state registrations amounting to 1,201,954, a gain of 12.5 per cent over 1935. About 85 per cent of the trucks were owned and operated by those who transport their own commodities. Based on the 1935 census, in the South were 17,089 motor truck for-hire concerns operating 46,251 trucks and doing an annual business of \$112,400,000.

The manufacture of motor cars and trucks is centered in the Mid-West, but in the making of motor bodies and motor vehicle parts, the South in 1935 had 85 establishments with an output valued at approximately \$50,000,000 and they expended for materials, fuel and power more than \$38,000,000.

### MOTOR VEHICLE REGISTRATION AND REVENUE

| States         | Motor Vehicles Registered 1936 | Per Cent Increase in Registration over 1935 | Registration Receipts and Other Fees 1936 |
|----------------|--------------------------------|---|---|
| Alabama        | 297,292                        | *22.5                                       | \$4,101,000                               |
| Arkansas       | 217,227                        | 4.7   | 2,829,000                                 |
| D. of Columbia | 181,319                        | 5.7   | 963,000                                   |
| Florida        | 386,907                        | 8.6   | 5,546,000                                 |
| Georgia        | 410,583                        | 4.2   | 1,302,000                                 |
| Kentucky       | 372,576                        | 7.6   | 4,591,000                                 |
| Louisiana      | 392,429                        | 12.5  | 4,112,000                                 |
| Maryland       | 378,462                        | 9.5   | 4,744,000                                 |
| Mississippi    | 205,890                        | 10.5  | 1,860,000                                 |
| Missouri       | 809,615                        | 5.6   | 8,988,000                                 |
| N. Carolina    | 504,517                        | 8.9   | 7,589,000                                 |
| Oklahoma       | 531,914                        | 5.9   | 4,743,000                                 |
| S. Carolina    | 278,829                        | +18.2                                       | 1,876,000                                 |
| Tennessee      | 380,792                        | 8.2   | 3,706,000                                 |
| Texas          | 1,478,124                      | 6.9   | 17,725,000                                |
| Virginia       | 417,463                        | 8.3   | 5,757,000                                 |
| W. Virginia    | 280,615                        | 12.7  | 5,832,000                                 |
| Total          | 7,433,945                      | 8.7   | \$86,253,000                              |
| United States  | 28,221,291                     | 7.6   | \$359,783,000                             |

\*Large increase due to fact 1935 total was for fiscal year ended September 30, 1935, and 1936 figures are for calendar year of 1936.

†Large increase due to fact 1935 total was for fiscal year ended October 31, 1935, and 1936 total was for calendar year. ‡Exclusive of gasoline taxes which amounted to more than \$880,000,000.

## Vitrified Paving Brick

Simplified practice recommendation R1-36, covering vitrified paving brick, was reaffirmed, without change, as of May 15, 1937, by the Standing Committee

of the industry, according to the division of simplified practice of the National Bureau of Standards.

The committee found that 80.5 per cent of the total shipments during the calendar year 1936 were in accordance with the 4 sizes shown in the simplified recommendation. In 1921 vitrified paving brick was available in 66 different sizes. The original recommendation reduced this variety to 11, and now to 4 sizes.

## Federal Motor Levies Show Big Gains

Special additional automotive taxes imposed by the Federal Government cost motorists \$82,797,919 in the first quarter of 1937, an increase of \$10,680,338, or 14.8 per cent, over the \$72,117,581 cost to consumers in the first quarter of 1936, reports of the U. S. Bureau of Internal Revenue indicate.

Of the nine levies, the duplicating Federal tax on gasoline again was the most expensive, amounting to \$42,589,453, or 51.4 per cent of the total cost of Federal automotive taxes, and up 12.9 per cent from the \$37,726,424 cost for the first three months of 1936. Federal taxes on lubricating oil cost \$7,609,280, an increase of 36.4 per cent over the \$5,581,280 cost in the first quarter of 1936.

The following table presents detailed costs and increases:

| Type of Tax                | First Quarter 1937 | 1936         |
|----------------------------|--------------------|--------------|
| Gasoline                   | \$42,589,453       | \$37,726,424 |
| Lubricating oils           | 7,609,280          | 5,581,280    |
| Motor trucks               | 1,920,260          | 1,924,904    |
| Motor vehicles and cycles  | 15,055,832         | 15,021,356   |
| Auto parts and accessories | 2,284,010          | 1,791,011    |
| Tires                      | 8,418,046          | 6,154,308    |
| Tubes                      | 1,661,285          | 1,237,655    |
| Pipe line transportation   | 3,042,503          | 2,470,599    |
| Crude petroleum processed  | 217,250            | 207,644      |
| Total                      | \$82,797,919       | \$72,117,581 |

## Highway Research Report

Proceedings of the sixteenth annual meeting of the Highway Research Board, held in Washington, D. C., last November, are covered in a 390-page volume issued by the Division of Engineering and Industrial Research of the National Research Council. The work is edited by Roy W. Crum, Director, Highway Research Board, Washington, and treats such general subjects relating to highways as: Finance, Highway Transportation Economics, Design, Materials and Construction, Maintenance, Traffic, Soils Investigations, and Road Soil Stabilization. The Highway Research Board is organized as a project of the Division of Engineering and Industrial Research of the National Research Council, and includes in its membership technical and commercial associations and organizations of national scope.

## Loss of Federal Grants Is Penalty for Diverting Highway Funds

A round-up of states which have misused roads funds by diverting the money to purposes other than highway financing is being pushed vigorously by the U. S. Bureau of Public Roads.

Under the Hayden-Cartwright Act of 1934 any State using for purposes other than highway financing more of the income from special additional automotive taxes, such as registration fees and gasoline taxes, than was provided for by State law at the time the Federal Act became effective, may be penalized one-third of Federal allotments. Under this ruling Georgia stands to lose about \$3,000,000, Maryland \$341,000, and New Jersey \$558,000.

Prior to 1929 the states spent virtually the entire income from gasoline taxes and registration fees for highway financing, the purposes for which these special additional taxes were imposed. During the past few years, however, a number of states have diverted highway funds to general purposes and relief costs, with resulting depletion of highway funds and, in some cases, curtailment of highway work. It is estimated that in 1936 more than \$150,000,000 in highway funds was spent by the states for other purposes, the diversion amounting to about one out of every seven tax dollars paid for roads.

## 1937 National Asphalt Conference at Memphis

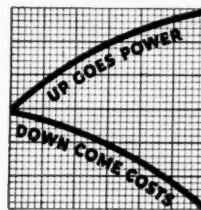
Highway building, flood control, stabilizing subgrades and airport surfacing are to be featured at the 1937 national conference of the Asphalt Institute to be held in Memphis, Tenn., during the week of December 6. The annual meeting is to serve as a clearing house in discussions of new types and methods of asphalt construction to lower costs and secure greater efficiency.

The Asphalt Institute, New York City, is establishing a field office at 613 Southwestern Life Building, Dallas, Texas, from which will be extended to Texas, Arkansas and Oklahoma the engineering, research and promotional activities of the asphalt industry. The Dallas office will be in charge of D. D. Williamson, formerly head of the Texas State Highway Laboratories.

## Vibrating Concrete Adds to Strength

Vibrating the concrete in a pavement as it is laid increases the strength 10 per cent, according to a report of the Bureau of Public Roads. By vibrating, 10 per cent less cement can be used and the same strength retained.

# 1937 CHEVROLET TRUCKS AND COMMERCIAL CARS



## Fleet Owners Buy Chevrolet Trucks and Commercial Cars for Unequaled Economy and Reliability

Chevrolet's "Rim of the Nation" test run in an "Economy Model" Half-Ton Pickup, recently conducted under the supervision of the A.A.A. Contest Board, offers fleet owners an exact, reliable basis for comparison of truck operating costs.

Only Chevrolet's High-Compression Valve-in-Head Engine has produced such an amazing record of economy and durability. Low gasoline and oil costs and negligible upkeep expense have never been so conclusively demonstrated—and by the engine that offers the greatest pulling power in the entire low-price field!

Chevrolet trucks and commercial cars are the only low-priced trucks with Perfect Hydraulic Brakes, for maximum safety and minimum upkeep. Increased Load Space and Improved Weight Distribution allow bigger loads per trip—another important economy for fleet owners.

See these new Chevrolet units, with their New Steelstream Styling—as smart and modern as they are economical and dependable. Ask your Chevrolet dealer for a demonstration.

*General Motors Installment Plan—monthly payments to suit your purse.*

CHEVROLET MOTOR DIVISION, General Motors Sales Corporation, DETROIT, MICHIGAN



*Unmatched Economy  
Proved in 10,244-Mile*

### "RIM OF THE NATION" TEST RUN

*With Half-Ton "Economy Model"  
Pickup—1,000-Pound Load*



Location of Test: "Round the Nation, Detroit to Detroit"  
Distance Traveled..... 10,244.8 Miles  
Gasoline Used..... 493.8 Gallons  
Oil Consumed..... 7.5 Quarts  
Water Used..... 1 Quart  
Gasoline Cost..... \$101.00  
Gasoline Mileage..... 20.74 Miles per Gallon  
Average Speed..... 31.18 Miles per Hour  
Running Time..... 328 Hours, 31 Minutes  
Gasoline Cost per Mile..... \$.0098  
Average Oil Mileage..... 1,365.9 Miles per Qt.  
Total Cost of Repair Parts..... \$0.73  
These records have been certified by the A.A.A.  
Contest Board as being officially correct.

**CHEVROLET**

FOR ECONOMICAL TRANSPORTATION

**"MORE POWER per gallon LOWER COST per load"**

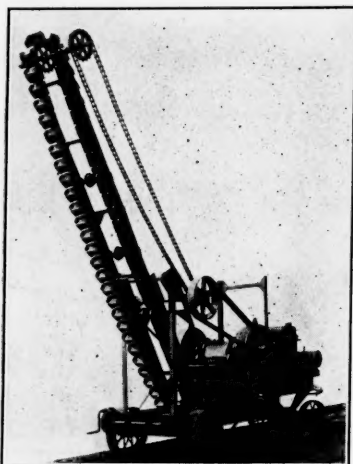


# EQUIPMENT

## NEW AND IMPROVED

### Jaw Type Rock Crusher

Of the "over-head eccentric" type, a new Jaw Type Rock Crusher, 10 by 20 size, has been introduced by Day Pulverizer Company, Knoxville, Tenn. The main frame or crusher base is made of a one-piece electric steel casting, heavily ribbed throughout, while the main shaft is of high grade heat treated alloy steel. Jaw and cheek plates are made of manganese steel, the former being reversible, end for



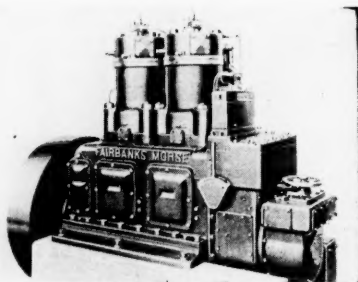
Crusher, Power Unit and Conveyor Mounted on Truck

end. SKF Double Roll Self-Aligning Roller Bearings are standard in both side and eccentric bearings. They are dust-proof and require practically no attention. The crusher may be installed by itself on skids, may be mounted on a two-wheel truck for operation from tractor rear power take-off, or may be mounted on a four-wheel truck, with power unit and folding elevator.

### Heavy-Duty Diesel For Small Power Users

Available in two and three-cylinder combinations with ratings of 60 and 90 horsepower, a new Fairbanks-Morse

Diesel Model 42-E



Diesel, Model 42-E, has been developed by Fairbanks, Morse and Company, Chicago, Ill., to meet the demand of small power users for a heavy-duty, continuous-service stationary engine. Smaller and lighter than the F-M Model 32-E, this Diesel embodies all proven features that have led to the daily use of several hundred thousand horsepower of the larger engines. With an 8 3/4-inch bore and 10 1/2-inch stroke, it may be installed where space and head room are limited, and is applicable for power requirements within its horsepower rating. Characterized by extreme simplicity of design and operation, the new model incorporates two important principles—direct airless injection of fuel and two-cycle design with crankcase scavenging, which result in the use of a minimum of moving parts. Along with a medium-low speed, this means greater reliability and lower maintenance cost.

### New Diesel Locomotives For B. & O. Railroad

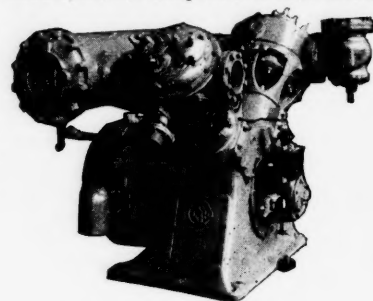
An illustration on page 5 shows the new 3690-horsepower Diesel locomotive built for the Baltimore and Ohio Railroad by the Electro-Motive Corporation of La Grange, Ill., subsidiary of General Motors Corporation. This locomotive, one of two built for the railroad, is composed of two 1800-horsepower units coupled for multi-unit operation from a single control station in the cab of the leading unit. The two units, referred to as "A" and "B" units, are identical and consist of two 900-horsepower Diesel power plants controlled simultaneously from the main locomotive throttle. With full supply of fuel, water and sand, the weight of the locomotive approximates 568,000 pounds, 284,400 pounds for "A" unit and 283,600 for "B" unit. The locomotives are intended for service on the Capitol Limited between Washington and Chicago and will form the last link in transcontinental Diesel-powered train operation.

### Fractional Horsepower Air Compressors

Ingersoll-Rand Company, Phillipsburg, N. J., announces a new line of fractional horsepower air compressors, with an automatic start and stop control and equipped with a new style seamless steel tank and an improved check valve. Compact and neat in appearance, the units are made in 1/4 and 1/2 horsepower sizes. When furnished for single phase current they are equipped with a brushless capacitor type motor and a built-in automatic protection switch giving *overload* and *under-voltage* protection. Rated for 150 pounds per square inch maximum pressure, they may be set for lower pressures, or may be supplied with a reduction valve for still lower pressures. The units are available on a 2.4-cubic foot tank, while the 1/2-horsepower size is also available on a 4.6-cubic foot tank in either vertical or horizontal mounting. The units may also be furnished less the tank.

### Sullivan Industrial Compressor

Great economy of power, maintenance, investment, installation and space are advantages claimed for the new Sullivan Class WN-112 Air or Gas Compressor, announced by Sullivan Machinery Company, Michigan City, Ind. In displacement sizes of 378, 480, 642 and 800 cubic feet per minute, the new compressor is of advanced



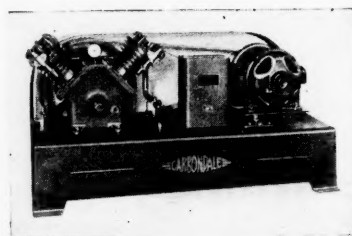
Class WN-112 Compressor

design, while the use of modern alloys and precision manufacture make it outstanding in performance. It is a continuous heavy duty machine and, although built for any type drive, reaches its greatest efficiency with the built-in motor. Thus equipped it requires only 6 feet by 8 feet of floor space. The compressor is equipped with "Dual-Cushion" valves, a feature recently developed by Sullivan engineers.

### Low Pressure Refrigerating Units

Designed to employ either freon or methyl chloride as a refrigerant and recommended for both air conditioning service and general refrigerating purposes, a new line of self-contained low-pressure refrigerating units has been announced by Carbondale Division of Worthington Pump and Machinery Corporation, Harrison, N. J. Mounted on a sturdy welded steel base, the compressor unit is compact, requiring small floor space as well as low head room. Both suction and discharge valves are the well known light-weight, quick-acting, Feather type; V-type compressors, from 4 to 8 cylinders, are made of a special metal combining extra strength and great density, and bearing and eccentric rods are of bronze. Electric motor drive to the compressor is the Multi-V-Drive.

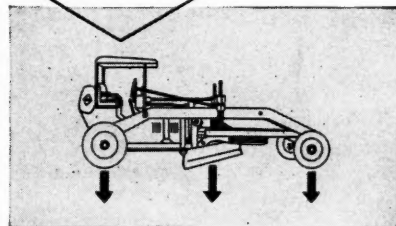
Compact Compression Unit





Smooth, even work by a motor grader is the result of **EFFECTIVE** blade pressure. Because of **BALANCED DESIGN** ... the Allis-Chalmers Speed Patrol converts more pounds of its total weight into blade pressure than any other motor grader.

One reason is the long blade base—which is made possible by extra long wheel base. Locating the moldboard farther back from the front axle puts a greater percentage of the patrol's weight into the blade—assuring smoother operation and more effective work. Correct location of the engine is another important factor ... the Speed Patrol's engine weight is between the wheels where it can best be converted into effective blade pressure and traction. More front-end weight means smoother maintenance—and prevents side-slipping on heavy cuts. Effective blade pressure **DOES** make a difference! Investigate now!



**ALLIS-CHALMERS SPEED PATROLS  
CONVERT A HIGHER PERCENTAGE  
OF THEIR WEIGHT INTO BLADE  
PRESSURE THAN ANY OTHER  
MOTOR GRADERS.**

**SINGLE OR TANDEM DRIVE ... NO. 42 AND NO. 54 SIZES ... GASOLINE, DISTILLATE, DIESEL FUEL**

**ALLIS-CHALMERS SPEED PATROLS**  
TRACTOR DIVISION—MILWAUKEE, U. S. A.

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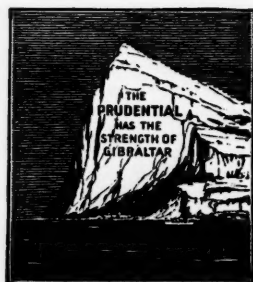
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# DECENTLY AND IN ORDER

Group life insurance sets an orderly method for supplying family needs when an employee dies.

This means a good deal to the management.

OUR BOOKLET  
AVAILABLE TO EMPLOYERS



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**THE PRUDENTIAL**  
INSURANCE COMPANY OF AMERICA  
EDWARD D. DUFFIELD, President  
HOME OFFICE, NEWARK, N. J.

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## FINANCIAL NEWS

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### Southern Railway Report

**T**HE annual report of the Southern Railway Company for the year ended December 31, 1936, shows an increase in revenue of \$13,389,401, or 16.15 per cent. Operating expenses and taxes increased \$7,292,052, or 11.05 per cent, which brought the ratio of operating expenses and taxes to operating revenues to 76.15 for 1936, compared with 79.65 for 1935.

President Fairfax Harrison interestingly sets forth under different heads the expenditures out of each dollar of revenue. This shows transportation of the traffic called for 34.55¢; maintenance of road bed and structures, 11.71¢; maintaining rolling stock, 18.11¢; general expenses, 3.14¢; traffic solicitation and supervision, 1.85¢, and operation of dining cars and other incidentals, 0.67¢.

Income after five years of deficits showed \$4,304,926 on the right side of the ledger.

Freight train car miles per car day increased 53 per cent last year over 1931.

Freight tonnage increased 22.48 per cent, and reached a total in 1936 of 32,525,777 tons, or an increase of nearly 6,000,000 tons over the previous year.

The president reports that 153 new industrial plants were established on the right of way, and additions were made to 116 previously existing. This included mills for the making of furniture, paper and pulp, textiles, hosiery, garments, forest and grain products, distilleries and packing house products plants.

Special allusion is made to the growth of the textile business and the abundant availability of Southern pine in the South for the manufacture of paper, and attention is called to the mills now under construction on the Southern Railway, besides others in prospect.

### Minimum Wages and Hours

**T**HE proposed minimum wage and hour law presented to Congress at the President's request will probably pass, as others have, based on the right of Congress to regulate interstate commerce.

The first draft of the bill proposes to exempt businesses with less than 15 employees. Whether it will be extended to cover agriculture or labor and domestic service remains for the future to decide. From a practical standpoint it would be difficult to apply it to labor of this kind, but in fairness it would seem they should be included.

The bill provides for a minimum of 40 hours a week, but it is believed by some members of Congress that 30 hours is enough. From their side the argument is made that only by such reduction of hours will the slack in unemployment be taken up. The other side is, it is not necessary to reduce the hours to either 40 or 30, because if we have anything like the prosperity we had in 1929, every worker will have a job except those who are to be classed as unfit or too lazy to work.

### Commonwealth & Southern

**T**HE Commonwealth & Southern Corporation, operating important public utilities in the Southern states, reports consolidated gross revenues for the  
(Continued on page 36)



# THE BALTIMORE AND OHIO RAILROAD CO.

## SUMMARY OF ANNUAL REPORT FOR YEAR 1936

**T**HE Annual Report of the President and Directors for the year 1936 is being mailed to Stockholders of record. Operating results and other matters of interest are summarized as follows:

### CONDENSED INCOME ACCOUNT

|  | Year<br>1936     | Increase<br>Over 1935 |
|--|------------------|-----------------------|
| Total Railway Operating Revenues .....                                 | \$168,992,680.63 | \$27,149,416.98       |
| Total Railway Operating Expenses .....                                 | 123,600,333.14   | 18,046,342.48         |
| Net Operating Revenue .....  | \$ 45,392,347.49 | \$9,103,074.50        |
| Railway Tax Accruals .....   | 10,222,321.63    | 2,989,585.57          |
| Equipment and Joint Facility Rents .....                               | 4,984,720.57     | 113,167.06            |
| Net Railway Operating Income .....                                     | \$30,185,305.29  | \$6,000,321.87        |
| Other Income: Dividends, Interest, etc. ....                           | 7,246,694.19     | 1,673,866.54          |
| Income Available for Fixed Charges .....                               | \$ 37,431,999.48 | \$7,674,188.41        |
| Fixed Charges: Interest, Rent for Leased Roads and Other Charges ..... | 32,893,024.36    | D 45,695.35           |
| Net Income After Depreciation .....                                    | \$ 4,538,975.12  | \$7,719,883.76        |

D—Denotes Decrease.

### REVIEW OF OPERATIONS

Operating revenues increased \$27,149,416.98, or 19.14% over 1935. Freight revenue increased \$25,030,467.69, or 20.39%, while revenue tons increased 23.38%. Passenger revenue increased \$1,293,928.99, or 13.08%, and the passenger miles increased 20.42%. The increase in passenger traffic is due in part to the increase in business activity and to reduction in fares on June 1, 1936. Other revenues, including mail and express, increased \$825,020.30, or 9.00%.

Operating expenses increased \$18,046,342.48, or 17.10% over 1935. Total maintenance expenses increased \$10,781,268.45, or 25.27%, of which \$3,340,164.60 was for maintenance of way and structures and \$7,441,103.85 for maintenance of equipment. The maintenance of equipment expenses include depreciation charges of \$7,363,115.87, an increase of \$162,602.53 over 1935. Transportation expenses increased \$6,927,170.90, or 13.77%. The transportation ratio was 33.86% of operating revenues as compared with 35.46% in 1935. The total operating ratio was 73.14%, compared with 74.42% in 1935.

### NET INCOME

Net operating revenue increased \$9,103,074.50, while taxes, equipment and joint facility rents increased \$3,102,752.63, resulting in an increase in Net Railway Operating Income of \$6,000,321.87. Other income, including rents, dividends and

interest, after deducting miscellaneous charges, reflects an increase over 1935 of \$1,673,866.54, while fixed charges decreased \$45,695.35. The net income after payment of interest and other fixed charges aggregating \$32,893,024.36, was \$4,538,975.12, an increase over 1935 of \$7,719,883.76.

### TAXES

The total taxes accrued as a charge to income in 1936 was \$10,495,868.31, an increase over 1935 of \$2,976,545.14. Of the total, \$2,135,651.02 was due to the Excise Tax, account of the Railroad Retirement Act of 1935, effective March 1, 1936, and \$725,246.24 was for the unemployment compensation feature of the Social Security Act, effective January 1, 1936.

Taxes accrued for 1936 absorbed 23.1 cents of each dollar of net operating revenue and was equal to \$3.33 per share of the total outstanding capital stock of the Company.

### BALANCE SHEET

The balance sheet at December 31, 1936, indicated total property (less accrued depreciation) and other investments, of \$1,079,956,632, current assets of \$33,822,073, as against current liabilities of \$27,409,462, and deferred liabilities, inter-company accounts, etc., net, of \$16,418,931. The total interest-bearing debt outstanding was \$678,664,643 (a decrease of \$9,029,272 compared with preceding year). The outstanding capital stock was \$315,158,485, and corporate surplus \$76,127,184.

### EMERGENCY INCREASE IN

#### FREIGHT RATES

Emergency increase in freight rates authorized by the Interstate Commerce Commission effective April 18, 1935, terminated December 31, 1936. During 1936 between \$6,000,000 and \$7,000,000 were realized by the Company from the emergency increase. As the reasons which justified the "Emergency Charges" are continuing with added emphasis as to cost of material it is hoped that the Commission will give sympathetic consideration to the petition of the railroads now pending for certain increases and adjustment of freight rates which will aid in meeting present basis of costs without imposing undue and inequitable burdens on commerce and industry, or without interfering with the flow of traffic.

### PICK-UP AND DELIVERY SERVICE

To facilitate the handling of less-than-carload traffic a system of store-door collection and delivery was inaugurated November 16, 1936, to apply to shipments paying not less than forty-five cents per 100 pounds.

### SHAREHOLDERS

At the close of 1936 there were 40,861 registered holders of the Company's capital stock of both classes, with an average holding of 77 shares. The continued cooperation of shareholders in the use of the Company's facilities and in the solicitation of the business of others for transportation over its lines is earnestly desired and greatly appreciated.

DANIEL WILLARD, President.



While cosmopolitan in its general appeal, and modern up to this moment in its equipment, there is a peculiar flavor of The Old South here which Southerners are quick to note and appreciate. They feel at home and come back to us again and again.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

**The Southern Hotel**  
BALTIMORE

## THE ESTABLISHED POLICY

of this Bank is to cooperate  
with meritorious Business.

Correspondence invited

## BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, President  
BALTIMORE, MARYLAND

Member Federal Reserve System  
Member Federal Deposit Insurance Corporation

# CONTINENTAL Chain Link FENCE



**HEAVIER—STRONGER**  
... Posts and fittings larger ... 35% more fabric ties ... heavier rails and bracing ... fabric of KONIK, a stronger steel — rust-resistant clear through. Erected complete, if desired, by expert Continental crews. Manual on "PLANNED PROTECTION" ... Free.

**CONTINENTAL STEEL CORP.**  
Kokomo, Indiana  
Plants at Kokomo, Indianapolis, Canton

**FABRIC OF KONIK STEEL**  
CONTAINING COPPER, NICKEL, CHROMIUM FOR GREATER STRENGTH AND RUST RESISTANCE  
MFG. UNDER U. S. PATENT NUMBER 2,000,000



## SPOTLIGHT

Turn the spotlight of laboratory test, trial in household furnace or stoker, or power plant performance on an ACI Quality Coal and what do you find? Complete fuel satisfaction with the utmost economy.

No matter what "quality yardstick" is used, whether it be ash, moisture, sulphur, B.t.u., or ash softening temperature, the spotlight reveals that ACI Quality Coals set the standard. These standardized products are inherently pure, thanks to the generosity of Nature; then they are properly prepared to meet the most rigid requirements of industry or the domestic consumer.

Industrial coal users in more than 20 states are turning to ACI Quality Coals. Retail coal merchants are holding household and other domestic business with these finest bituminous coals in the world. Over 40 million tons are available annually for industries and for retailers.

Interested in ACI Quality Coals for any purpose? Just drop a line to ACI headquarters in Cincinnati. Ask for lists of producers and agents. Through Appalachian Service, your inquiry will receive prompt attention.

**Appalachian Coals, Inc.**  
TRANSPORTATION BUILDING - CINCINNATI, OHIO

## Financial News

**Commonwealth & Southern**  
(Continued from page 54)

year ending April 30 of \$15 million more than in the previous year. Operating expenses and taxes increased nearly 00½ million. After deducting reserves, interest and other fixed charges, net income showed an increase of \$15 million, or an equivalent of \$10.00 per share on outstanding preferred stock, as compared with \$6.75 for the 12 months preceding.

## Labor Standards Board Job

**I**N considering the minimum wage and hour message of the President, and the bill introduced to put his wish in effect, quite a job will fall to the Board because of the decisions of many kinds it will be called upon to make. The bill introduced by Senator Black and Representative Connery allows for variations in different localities and different businesses. From first consideration of the matter it would seem to call for the wisdom of a Solomon to draw the line under all the variety of circumstances that will doubtless be presented.

Not alone this but the Journal of Commerce calls attention to the fact that the Board will be confronted with "the problem of industries and enterprises that now pay materially lower wages than the minimum suggested. Out of 105 industries that report wage data to the Department of Labor, at least seven pay average hourly wages of less than 40¢. This means, of course, that a large part of their personnel receives less than 40¢ per hour. In one, the average hourly rate was 37.1¢ per hour; 11 per cent pay less than 25¢, and 27 per cent less than 30¢."

The continued existence of these concerns is a matter of great importance to the areas in which they are located.

The proposed bill specifies that the Board may vary the minimum wage and maximum hours laid down "by regulation or by order as to all employees or as to any class to the extent that the board finds a variation necessary or appropriate to prevent the depression of general wage levels below those consistent to the maintenance of a minimum standard of living, necessary for health and efficiency, without unreasonably curtailing opportunities for employment." All of which calls for judgment balanced on a delicate scale.

## Repeal Capital Gains Tax

**I**N introducing a bill to repeal the capital gains tax, Representative Celler of New York gave it as his opinion that this is a definite step in the government's program to speed up recovery and reduce unemployment. He said that no other major nation in the world imposes such a tax upon its citizens, and expressed the belief that the Federal government's revenue, by the repeal of the tax, would gain \$250 million as a result of direct increases in the turnover tax on securities, and as the indirect result of widespread business pickup. Furthermore, there would be a decided increase in the revenue of many states; that New York will benefit to the extent of probably \$10 million yearly.

He estimated the flight of American capital into Canada is at the rate of nearly a million dollars a day, and the proposed repeal would prevent this annual flight of hundreds of millions from America into foreign security markets.

"Repeal of the tax would set free approximately \$500 million for the building trades and heavier industries. Greater impetus would be given to re-employment."



## **VIRGINIA OFFERS OPPORTUNITIES**

Proximity to sources of raw materials, ample labor supply, low taxes and adequate banking facilities through First and Merchants offer opportunities to manufacturers seeking a location for their factories. Inquiries addressed to Virginia's largest and Richmond's oldest bank will receive prompt attention.

### **FIRST AND MERCHANTS National Bank of Richmond**

John M. Miller, Jr., President

Capital and Surplus \$5,600,000—Member Federal Deposit Insurance Corporation

Manufacturers engaged in industries using highly specialized heating applications, which require fuel purity, cleanliness, and delicate control, find a suitable fuel in

## **NATURAL GAS**

In such industries the sensitivity of natural gas to accurate control of pressure, temperature, or furnace atmosphere, results in a saving of raw material due to reduction of waste from the heating process.

### **SOUTHERN NATURAL GAS CO.**

Watts Building

Birmingham, Ala.



# INDUSTRIAL NEWS

## Wheeling Steel Appoints Atlanta Manager

Succeeding R. F. Smith, whose duties have been transferred to special sales activities, John B. Thomas has been appointed manager of the Atlanta, Georgia, district sales office of the Wheeling Steel Corporation, Wheeling, W. Va. Mr. Thomas has been assistant manager of the Wire Sales Division of the company at Wheeling.

## Condor Belts Make Record

Two horizontal water wheel drives at the plant of the Prospect Mills, Inc., Lawrence, Mass., equipped with Condor Compensated Belts, have recently been severely tested by two floods, being submerged from 5 to 12 days. After each flood the Condor Compensated belts, which are made by the Manhattan Rubber Manufacturing Division of Raybestos-Manhattan, Inc., Passaic, N. J., were dried, cleaned, dressed and put back to work.

## Hercules Engines in Unusual Power Plant

An unusual power plant for the Nash-Finch Wholesale Grocery Company, Oklahoma City, consists of three Model RXB Hercules engines, hooked up with two 75-K. V. A., 900-R. P. M., 250-Volt, 60-cycle generators. A third generator is hooked up with these two with a V-belt, the same method by which the engines are attached to the generators. The engines, manufactured by the Hercules Motors Corporation, Canton, Ohio, are of the low-fire-hazard type designed by Hercules primarily for oil-field use, and operate on natural gas of from 1000 to 1100 BTU content. The throttle of the mixing valve can be operated through remote control equipment which is supplied.

## Chemical Industries Exposition

More than 200 exhibitors will be represented at the 16th Exposition of Chemical Industries to be held at Grand Central Palace, New York, December 6-11, 1937, where they expect to come into contact with 40,000 buyers. These industrial leaders, as represented by their exhibits, include every line of industry seeking to take advantage of the possibilities offered by the Exposition. With the constantly increasing activities of the chemical process industries, there is a growing demand for new equipment and replacements.

## Strand Canadian Representative

N. A. Strand & Company, Chicago, Ill., manufacturers of flexible shafts and machines, have made exclusive distribution arrangements in Canada with Williams & Wilson, Ltd., covering the provinces of Quebec, Ontario and Maritime Provinces.

## Stainless Steel in New Uses

Designed for use in stores, restaurants, backbars and other architectural applications where border effects are desired, a stainless steel decorative frieze fabricated of Allegheny Metal Cold Rolled Strip is announced by the Allegheny Steel Company at Breckenridge, Pa. This Allegheny Metal frieze has a bright, white finish and may be used effectively on wood, plaster or metal surfaces. Employing what is believed to be the first use of stainless steel for outside billboards, Joseph T. Ryerson & Son, Inc., Chicago, recently erected a 40-foot streamlined billboard of Allegheny stainless steel as plant identification.

## Washington Representatives For Ransome Mixers

Ransome Concrete Machinery Company, Dunellen, N. J., manufacturers of concrete and industrial mixers, announce the appointment of Paving Supply & Equipment Company, Washington, D. C., as representatives in the District of Columbia for the Ransome line of truck mixers and cement agitators.

## Hatch Becomes Gar Wood Sales Engineer

Harold C. Hatch has been named sales engineer by George E. Robinson, general manager of the Mead-Morrison division of Gar Wood Industries, Inc., Detroit, Mich., for the company's line of winches, cranes and pole derricks. For the past three years Mr. Hatch has served the company in the capacity of assistant engineer of the Mead-Morrison division.

## Homestead Valve Representatives

Homestead Valve Manufacturing Company, Inc., Coraopolis, Pa., announces the following exclusive representatives for the sale of its complete line of Quarter-Turn Plug Valves, Protected Seat Hydraulic Operating Valves, and Boiler Blow-Off Valves: Warren Bruce and Company, 3908 Olive street, St. Louis, Mo., and Proctor Engineering Company, Inc., 106 Key Highway, Baltimore, Md.

## Waterproofing and Preserving Material

A new waterproofing and preserving material for unpainted cement, stucco, brick, concrete and unglazed hollow building tile has been compounded by the Rock-Hesive Distributing Company of Los Angeles, Calif. Impervious to heat or cold, with no volume change, this new material which is known as Rock-Hesive, will not crack from the surface to which it is applied. It forms a chemical seal by filling the pores of the surface and, upon hardening, provides a hard protective water and weather-resisting coat.

(Continued on page 60)

## INVESTIGATE —before TOO LATE

*Unusually fine location for  
assembly or fabricating plant*

## GLENBURNIE

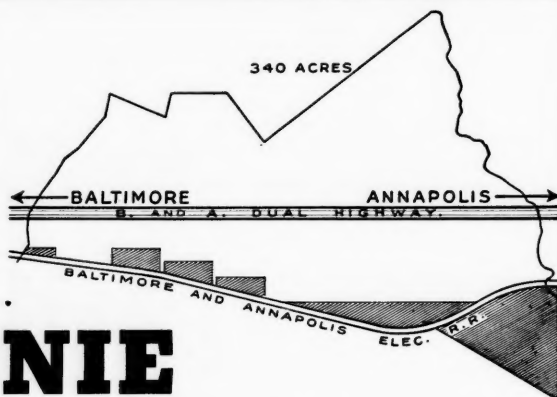
Write or wire us for the landscape plat and detailed information regarding this strategic location—superior not only for manufacturing, but also for both domestic and foreign shipping. In the heart-zone of three ideal American cities:

## BALTIMORE...WASHINGTON...ANNAPOLIS

There's a scramble on now for preferred factory locations. Start your investigations immediately. Otherwise, time may work against you. Factory locations in this area will doubtless be at a premium in the near future.

**The Glenburnie Development Co.**  
1409 L Street, N. W., Washington, D. C.  
GEORGE B. FURMAN, President

**WRITE  
TODAY!**



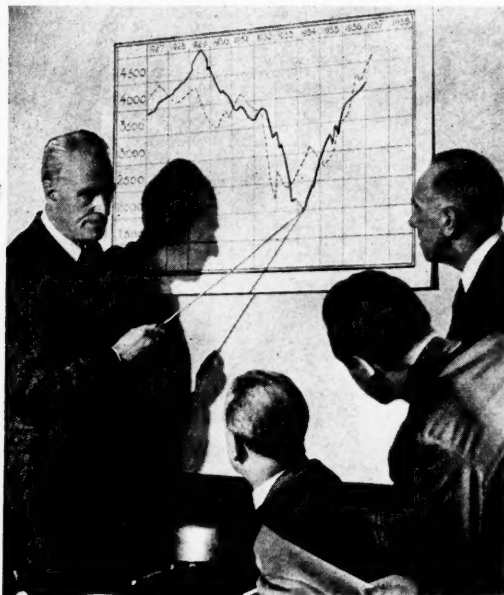
# "If We're to Make Money, We Must Certainly Have—"

*Lower Taxes!*

*Plenty of workers*

*Freedom from  
labor troubles*

*Ample housing  
facilities*



*Savings in  
power and fuel*

*Raw materials  
nearby*

*Quick access by  
water and rail to  
world's greatest  
markets*

If your problem is cutting overheads and finding new markets, you should have the facts about Savannah and Port Wentworth. Here at Port Wentworth are 2500 acres for industrial sites, fronting on the deep water of the Savannah River.

Water, sewers, electric light and power, housing facilities and plenty of skilled and common labor of white American stock, and also good colored labor, are available at less cost. Savannah has always been almost entirely free from labor troubles. New industrial enterprises are exempt from taxes for five years.

The State of Georgia is rich in almost every mineral of commercial importance. Highgrade clays exist in almost limitless tonnage. Within a radius of Savannah and Port Wentworth are 5,797,000 acres in forests, including the fast-growing Southern pine now drawing kraft pulp, paper and linerboard mills to this region. These abundant raw materials together with the vast agricultural resources of the South are fast making the territory surrounding Savannah, a leading manufacturing center.

You are invited to make use of our up-to-date information available in terms of your particular industry. Inquiries will be treated confidentially.

**PORT  
WENTWORTH**  
CORPORATION  
Offices at  
Savannah, Ga.  
17 East 42nd Street  
New York City

WRITE TODAY for our Free Booklet:  
"Factors in Industrial Location." Full  
of interesting facts.



# INDUSTRIAL NEWS

(Continued from page 58)

## Ex-Cell-O Organization Changes Name

The Ex-Cell-O Aircraft & Tool Corporation, Detroit, Mich., changed the corporate name to Ex-Cell-O Corporation. The company manufactures precision boring machines for boring production parts such as pistons, connecting rods, transmission gears, etc.

## New Tipple at Kentucky Mine

The Elmer Miller Coal Company, Toledo, Ohio, sales agent for Appalachian Coals, Inc., Cincinnati, Ohio, announces the completion of a new tipple at The Beaver Coal and Mining Company's mine at Drift in Floyd County, Kentucky. Modern vibrator screens, vapor oil-treating equipment, crushers and electromagnets have been installed.

## \$4,000,000 Frigidaire Expansion

The Frigidaire Division, General Motors Corporation, Dayton, Ohio is to start a \$4,000,000 construction program at Moraine City.

## International Heating and Ventilating Exposition

At the Fifth International Heating and Ventilating Exposition, otherwise known as the Air Conditioning Exposition, to be held at Grand Central Palace, New York, January 4-6, 1938, the theme will be "perfect weather indoors the year round." The Exposition will be under the personal direction of Charles F. Roth, who has been similarly responsible for previous expositions. Executive offices are at Grand Central Palace.

## Heads Atlantic Refining Company

Robert H. Colley has been elected president of The Atlantic Refinery Company, Philadelphia, Pa. Entering the employ of the company in 1919, he became vice president in 1936.

## Bretzlaff Vice President Defiance Pressed Steel

The appointment of W. Herbert Bretzlaff as vice president of The Defiance Pressed Steel Company, with factory at Marion, Ohio, and sales, research and experimental offices

## By the Insurance Department CONDENSED STATEMENT SHOWING THE CONDITION OF THE Fidelity & Guaranty Fire Corp. Baltimore, Md.

| DECEMBER 31, 1936                               |                |
|---|----------------|
| Total income during the year                    | \$3,858,285.48 |
| Total disbursements during the year             | 3,394,074.01   |
| Total admitted assets                           | 6,535,420.63   |
| Total liabilities except capital                |                |
| Capital actually paid up in cash                | \$1,000,000.00 |
| Surplus over all liabilities                    | 2,000,692.79   |
| Surplus as to policy holders                    | 3,000,692.79   |
| Total liabilities                               | \$6,535,420.63 |
| Net Premiums in United States December 31, 1936 | \$5,562,830.54 |
| Risks written in Maryland during 1936           | 34,799,466.00  |
| Premiums on Maryland business in 1936           | 168,487.98     |
| Losses paid in Maryland in 1936                 | 70,077.81      |
| Losses incurred in Maryland in 1936             | 56,908.81      |

## STATE OF MARYLAND

Office of the

STATE INSURANCE DEPARTMENT  
Baltimore, Md., March 1, 1937

I hereby Certify, That the above is a true abstract, taken from the Annual Statement of the FIDELITY AND GUARANTEE FIRE CORPORATION, BALTIMORE, MD., for the year ending December 31, 1936, now on file in this Department.

W. S. HANNA,  
Insurance Commissioner.

at Toledo, Ohio, has been announced by the company.

## Removes New York Office

The C. O. Bartlett & Snow Company, Cleveland, Ohio, removed its New York City office to 404-E at 30 Church Street. C. W. Ross, District Manager, who has represented the company's foundry, drying, conveying and coal ash handling equipment in that territory for more than twelve years, will continue in charge.

## Seeking New Industries

Governor Hugh White, of Mississippi, reports progress under the new program of the State to stimulate industrial development. The Industrial Planning Commission, Jackson, authorized under the act to pass on new industrial locations, is negotiating with 56 communities seeking industries under the plan.

## Cheraw, South Carolina, Developments

Based on recreational advantages, the City of Cheraw, South Carolina, is now at the beginning of a worthwhile development, according to R. E. Hanna, of the South Carolina Economic Association, Inc., Cheraw. An important phase of this development is the opening of a 7000-acre State Park with a 300-acre lake, and the opening of a 92,000-acre Sand Hills development. On U. S. Highway No. 1, a \$500,000 bridge is being constructed across the Great Pee Dee River, and smaller sums are being expended upon other highways out of town.

## First Paper for Lincoln Arc Welding Award

Robert S. Hale, 1008 Atlas Bank Building, Cincinnati, Ohio, has the distinction of submitting the first paper in competition for the \$200,000 awards of the James F. Lincoln Arc Welding Foundation, according to A. F. Davis, Cleveland, Ohio, secretary of the Foundation. Mr. Hale holds the position of construction engineer, Procurement Division, Public Work Branch, United States Treasury Department. His paper, with other competing papers, will be delivered to the Jury of Awards, June 1, 1938—its subject relating to the construction field in which the use of arc welding has made marked progress in recent years.

## 1938 International Petroleum Exposition

Available exhibit space is being rapidly reserved for the International Petroleum Exposition, to be held in Tulsa, Okla., May 14-21, 1938. There are 476 booths in the five large exhibit buildings and 300,000 square feet of outside space in the 20-acre site. A non-profit institution, the exposition is headed by W. G. Skelly, president of the Skelly Oil Company. Alf G. Heggem, president of the Oil Well Improvement Company and Frank Hinderliter, president of the Hinderliter Tool Company, are vice-presidents; Clyde Pope, secretary-treasurer of the Selby Oil & Gas Company, treasurer; W. B. Way, is general manager; and H. R. Powers, manager of the Tulsa Chamber of Commerce oil industries committee, is secretary.

# FLORIDA'S

geographical location

with the Atlantic on the East, the Gulf on the West, insures a year 'round temperate climate.

## In Florida You Will Find:

A comfortable place to live—summer and winter.

Fruits and vegetables growing during the off season in other parts of the nation.

The vacationists' paradise, hunting, fishing, surf bathing and other outdoor sports and recreational pastimes.

Advantages offered many lines of industry.

Make a survey of the State from the angle of your particular likes or needs.

For literature and general  
information—write

## MODEL LAND CO.

Flagler System

ST. AUGUSTINE, FLORIDA



## Roller Bearing Equipped

If faster, smoother,  
quiet crane operation  
PLUS

Low power consumption,  
minimum maintenance  
and longer crane life in-  
terest you write for the  
Erie Crane booklet. Let's  
have your shop or yard  
Overhead Crane problem.



ALL TYPES DIGGING AND  
RE-HANDLING BUCKETS  
OVERHEAD ELECTRIC CRANES  
STRAYER ELECTRIC BUCKETS  
AGGREGATORS TO HANDLE  
BULK MATERIALS . . . . .

# Erie

**ERIE STEEL CONSTRUCTION CO.**  
880 GEIST ROAD - - - - - ERIE, PENNSYLVANIA



## SAVES YOU MONEY

Lyonore Metal saves repairs and  
maintenance costs by retarding the  
corrosion rat from gnawing in.  
Outlasts by years other sheet  
metals of comparable price. You  
save most when you get the best—  
insist upon Lyonore Metal for all  
sheet metal work. Send for details.

**Lyon, Conklin & Co. Inc.**  
Washington Baltimore

# Lyonore Metal

CHROMIUM • NICKEL • COPPER • IRON ALLOY

JUNE NINETEEN THIRTY-SEVEN

## SOMETHING

## YOU'LL WANT TO KNOW

## about the Armco Distributor

This "something" can put dollars in your pocket and  
make easier the *sheet metal purchasing, and using,*  
part of your business.



The Armco Distributor is not merely an order-taker.  
He doesn't sell you some sheets and then forget you  
till the next order comes along. No, sir! He's there help-  
ing you buy and apply the grade that fits your need.

Most any distributor can give you quick deliveries  
out of ample stocks; but the thing that makes the  
Armco Distributor different is the intimate interest  
he takes in your sheet metal problems—*before* the  
order is signed and *after* the sheets are in work.



Right behind this distributor are the vast resources  
of Armco—modern continuous mills, skilled workers  
and one of the finest and best equipped research  
laboratories in the industry. These are all for you  
when you use one or more of the many grades that  
Armco produces. Here is a team that's hard to beat.  
Call the nearby Armco Distributor when next you  
need iron or steel sheets, including stainless.



## ARMCO SHEET METALS

The American Rolling Mill Company, Executive  
Offices: 703 Curtis Street, Middletown, Ohio. District  
Offices and Distributors located in all principal cities.

## Encouraging New Uses for the Cotton Surplus

IN seeking to increase cotton consumption, the Agriculture Adjustment Administration is pushing its campaign to encourage eight new ways to use the cotton surplus. The program was provided for by section 32 of amendments to the Agricultural Adjustment Act, approved in August, 1935, which makes available 30 per cent of the annual customs receipts for certain purposes, including the encouragement of consumption of agricultural commodities by diverting them from normal channels of trade.

The additional uses of cotton include the following: (1) as a covering or membrane, either by itself or as a reinforcing material, for sides of irrigation, drainage, run-off, or other types of ditches; (2) as a covering or membrane to reinforce fills or cuts for roads, highways, etc.; (3) as a protection for hives of bees; (4) as a protective covering for fruit trees and vegetables during growing, ripening or curing processes; (5) as a covering for shading or protecting tree seedlings or shrubs during critical periods of growth; (6) as a portable covering, hood, or tent in connection with fumigating, spraying, or dusting fruits, vegetables, trees, plants, etc.; (7) as a roof, outside covering material, or insulation in the construction of permanent or semi-permanent structures; (8) as a membrane or reinforcing material in connection with the surfacing of airport runways, roads, bridges, paths, or walks.

Last year experiments were carried on in 24 States in road construction work, using cotton fabric both as a binder in surfacing roads with bituminous material, and as mats for curing concrete. In April 1936, the use of cotton fabric was incorporated into the plans for surfacing runways at Riley Field, Ft. McClellan, Ala., and at Municipal airport, Newark, N. J. The Department of Agriculture set aside \$1,300,000 for cotton fabric high-

ways. With this sum about 8,500 bales of cotton were diverted to this use in 1936. The new plan will furnish cotton to the Bureau of Plant Industry for fumigation tents, and about 10,000 yards of an open mesh fabric to the Forest Service for soil protection and cotton fabric for roofing, side wall and ceiling material.

Tests of the efficiency and economy of each type of use will be made in Federal and State experiment stations in North Carolina, Virginia, and Maryland, and perhaps in other States in 1937.

## Salt Dome Discoveries

CONDITIONS in Alabama are favorable for the occurrence of commercially-usable salt, and it is expected that discoveries will soon be made. Dr. Walter B. Jones, State geologist of Alabama says, commenting on the findings of a geo-physical survey of the State made recently with an Askania vertical variometer, or magnetometer.

"The Alabama situation is considerably strengthened by the recent discovery of a large salt dome near Hattiesburg, Miss., just across the Alabama line," the geologist said. "In the Hattiesburg discovery salt was struck at about 2,500 feet, after passing through about 900 feet of gypsum. The well was continued 1,400 feet into pure salt without passing through it. The salt is solid and of great purity. . . . Perhaps the most favorable Alabama localities are near Fairhope, Elberta, and Magnolia Springs, in Baldwin County; near Bayou Labatre and perhaps other places in Mobile County; near Chatham in Washington County, and along a belt extending across the central part of Clarke County.

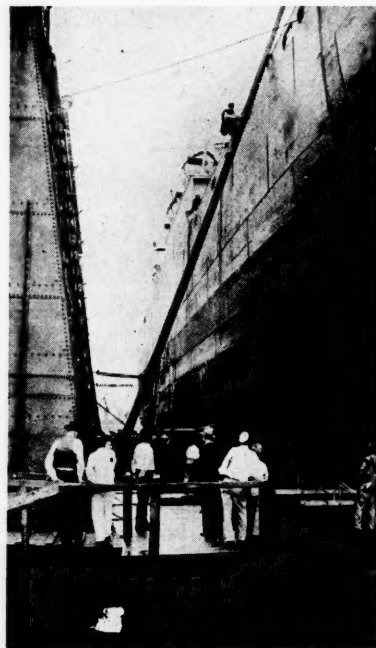
"With the migration of the paper industry to the South, and the requirements of large amounts of salt cake by that industry, salt would be a most welcome discovery in this state."

The survey was carried out by Dr. J. Brian Eby, and E. C. Nicar, with the cooperation of Thomas W. Martin, president of the Alabama Power Company.

## More Ships Being Built

(Continued from page 35)

and has been for a long time, largely carried in foreign vessels. From this, of course, foreign owners reap growing benefit as our trade grows. It follows as a natural conclusion that American ships should be given every encouragement, with the outlook that the building of new



S. S. Syros on Tampa Dry Dock

The vessel is owned by Lykes Bros. Ripley Steamship Co., and is one of several recently repairing by the Tampa Shipbuilding & Engineering Co., at its 10,000-ton floating dry dock completed in 1936.

ships will grow in volume if laws and regulations are so framed as to permit American ship owners to compete with foreign powers.

It has been the comment of those familiar with the sea and its commerce for years that apparently too many of our laws have been made by men who have never seen blue water, and certainly have never tried the complicated work of meeting trade conditions in all parts of the world, while at the same time having to contend with regulations made at home that were not always by any means dictated by common sense, much less designed to meet competitive conditions.

It is a complicated work—this merchandising on the high seas. Anyone who has traveled on a freight carrier sees readily enough that the man in charge of an important cargo must be more than a navigator. He must be decidedly a merchant, a diplomat and a leader of men. His work has not always been appreciated.

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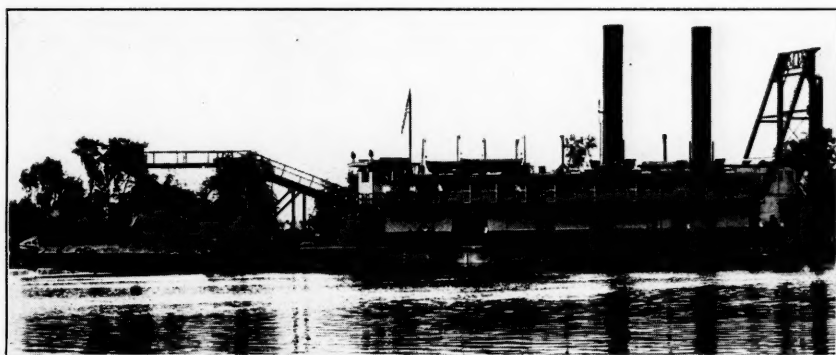
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## World Looks to the South for Helium Supply

(Continued from page 33)

erate helium production and repurification plants. The Army and Navy and other branches of the Federal service requiring helium may purchase it at actual cost. Surplus helium may be leased to American citizens until needed for Government use but exportation may be made only after application is made to the Secretary of Commerce and approved by the President and the heads of the Navy, War and Commerce departments.

The Hindenburg calamity immediately brought reports of plans for relaxing this war time vigilance by allowing sale of the non-inflammable lifting gas for use in American craft. Under the proposed new law appropriately sponsored by Texas' Senator Morris Sheppard, the Federal Government would be permitted to sell the gas to Americans. Helium could be sent out of the country in quantities not of military importance, which in effect would continue the present export embargo.

Whether helium could be supplied from

Government production for German commercial ships would be up to the President and the three secretaries concerned. Secretary Roper, of the Department of Commerce, is quoted as expressing the belief that the gas would soon be made available to nations experimenting in the lighter-than-air field. Dr. Hugo Eckener's declaration that helium will float the new dirigible now being constructed in Germany for transatlantic service, is thus virtually confirmed. Col. Robert G. Ebert, chairman of the Air Commerce Planning Committee of the Business Advisory Council, however, advocates liberalization of the present plan only where it will include exchange of foreign technical knowledge and information resulting from experience.

Officials of the Army and Navy both favor raising the restrictions and allowing a limited amount of the gas to leave the country. They would place responsibility for the transactions on the President and State Department. Senator David I. Walsh, chairman of the Senate Naval Affairs Committee, talks conservation, perhaps remembering the utter disregard for international regulations and agreements rampant during the World War.

## Augusta—

(Continued from page 34)

culty in navigation was encountered between New Savannah and Augusta, a distance of 14 miles. During dry spells, when the river was low, there was often not enough water for the boats to negotiate this stretch.

To remedy this condition, the movement was launched to secure the lock and dam which the Army engineers recommended to make the river navigable nearly all the year. The improvement as presented to the Congress in December 1927, provided for the construction of the lock and dam proper at a cost \$1,305,000 and an additional expenditure of \$75,000 annually for operation and maintenance for the first three years and \$50,000 annually thereafter. By act of the Congress of July 3, 1930, the improvement was authorized and the work was started about two years ago. In addition to the lock and dam proper, Congress also appropriated an additional sum for channel work in connection with the main improvement, placing the total sum expended at approximately \$2,000,000.

The giant concrete and steel structure which now spans the river is capable of creating a maximum depth of 14 feet between New Savannah and Augusta. The entire works is 500 feet in width, consisting of the locks and the dam. The locks chamber has a width of 56 feet and is 400 feet in length. The depth of water in the chamber can be varied from 10 to 34½ feet, so that boats can be raised or lowered into position for negotiating the difference in water level of the stream below the dam and above it. The mechanism of the locks is operated by electric and hydraulic power.

The dam consists of six concrete piers and five steel spillway gates that are raised and lowered by electrically operated machinery. The gates are each 60 feet in width and have a depth of 15 feet. The machinery is operated from a control room on the Georgia side of the structure. The locks also are on the Georgia side as are the office and residence of the superintendent which are several hundred yards down stream from the lock and dam.

The project was constructed by the Arundel corporation of Baltimore. Captain W. A. Wells, U. S. A., Corps of Engineers, is the resident engineer.

With the lock and dam completed, with bright possibilities for the Inland Waterways corporation to establish dependable year-round barge service, and with encouraging prospects for securing the \$22,000,000 Clarks Hill development, truly Augusta is on the threshold of an era of prosperity that promises to surpass even that which this historic city knew in the old river days.



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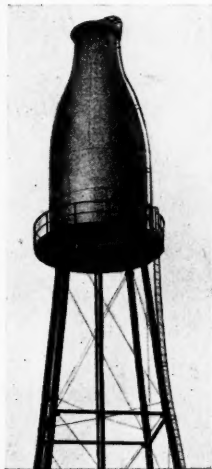
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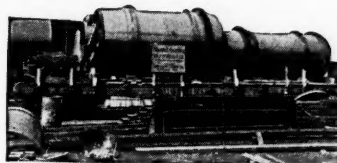
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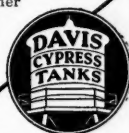
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## The South as a Producer and Consumer of Steel

(Continued from page 32)

creased the number of their employees to over 60,000 persons, the largest number for this region in the history of the steel industry. This represents a gain of more than 20 per cent over the number employed in 1929.

With the iron and steel productive facilities of the South continually being enlarged, it is likely that employment in Southern steel mills will continue to rise. More than 10 per cent of the 556,000 employees of steel mills throughout the country are located at Southern plants. Since rapid strides are being made in the development of steel facilities in Alabama, Maryland, West Virginia and other states, it is likely that the South will at least hold its own in competition with other steel-producing areas, in the next few years.

The annual payroll of workers in Southern steel plants is now well above the \$88,000,000 total listed by the Federal Census of Manufactures for 1929. These gains in wages and salaries have been effected in spite of the fact that hours of work have been measurably shortened through the universal adoption of the forty-hour week. Hourly wage rates in

the South have been raised substantially above the level of 1929 through two recent blanket increases at iron and steel mills, one of which became effective in November, 1936, and the other in March, 1937. These increases were on a sliding scale basis, with those in the lower income brackets receiving a larger percentage rise than the higher paid workers.

The South is thus receiving its full share of increased purchasing power contributed by the two recent wage rises in the steel industry, which have added \$205,000,000 a year to wage and salary envelopes of steel workers throughout the country, according to the American Iron and Steel Institute. It is estimated that the industry's annual payroll in the United States is now \$1,055,000,000, a record total. In 1929, the best previous year, the industry paid \$841,000,000 in wages to 458,000 employees, according to the Census of Manufactures.

Possessing ample raw materials, such as iron ore, coal and limestone, the South's iron and steel industry should continue to share in the improved business activity of the country, and to feel the special stimulus of the increased industrialization of many Southern states.

### MODERN DOORS—

Catalog—"Modern Cornell Doors—Upward Acting," illustrating and describing Cornell Upward Acting Doors and Grilles in various metals and wood.  
Cornell Iron Works, Inc., Long Island City, N. Y.

## Rayon Production at Capacity

(Continued from page 36)

closing their operations. The total value of the South's rayon output is in excess of \$104,000,000 out of the country's production of \$185,159,000 in 1935. Southern mills expended more than \$36,000,000 for materials and power in 1935.

In addition, the 1935 census of rayon manufactures, weaving, spinning, and processing for sale, in the South covers 49 establishments with a combined output of approximately \$58,000,000 or 28 per cent of the country's total. These Southern mills expended \$36,000,000 for materials and power. North Carolina, with 27 establishments and output of \$33,205,000, was the leading Southern state in the manufacture of rayon goods, South Carolina had 6 establishments producing \$15,337,000, Virginia 9 with an output of \$4,963,000 and Alabama reported 2 establishments, Maryland 2 and Tennessee 3 for which individual figures are not available for publication.

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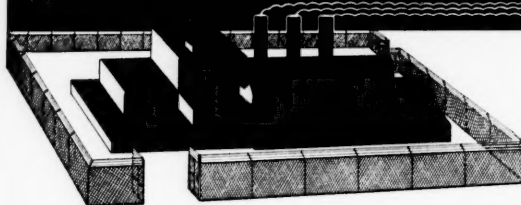
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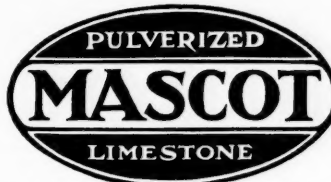


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Scientific development has produced new types of glass. It is not merely a product for windows, for mirrors, for containers. Glass is now a building material. Research has made glass a new medium that stimulates a new conception of four walls and a roof. Available in fascinating new forms, glass is taking a place in modern architecture and design, embodying the skillful use of light, in the application of the flat glass industry's newest development, vitrolux, a color-fused, tempered glass.

In addition to the use of glass in living and bed rooms, it is in the kitchen and bath rooms that glass is particularly well developed for application, lifting these rooms of the home to new utility and distinctive beauty. New types of glass are used for wainscoting, trim, walls and ceilings, for table tops, decorative panels,

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## Apprentice Training

(Continued from page 38)

workers who have reached 45 or over are being returned to industry at the rate of two per cent per month.

The Architectural Forum, in a recent survey, goes a step beyond the Myers survey by declaring that the widespread lack of apprentices is heading the building industry straight for a labor shortage and points out that 90 per cent of the labor unions are not considering taking on any apprentices. The employer finds a need for younger men. The unions, on the other hand, count the older skilled class as eli-

gible for employment. Both, however, realize the importance of pre-apprentice training, with the employers taking the forward step in the development of younger men.

The Forum survey reported that the manufacturers of materials, "promptly started training and educating young men in the crafts. A building supply dealer in a Southwestern state has encouraged young men in his town to take up carpentry. In Minnesota and Iowa, several manufacturers are urging young men to go to Minneapolis to the Dunwoody Institute.

That these schools are appealing to the better class of young men is indicated by the enrollment at the Frank Wiggins Trade School, in Los Angeles. Here, out of 2,000 students, 60 per cent of them have high school diplomas, while 10 per cent have done work beyond the high school graduation point.

The problem facing the construction industries is becoming increasingly the problem of all industry. It requires prompt action with a view to supplying an adequate number of skilled workers. But in addition to educational provision, it is necessary that some propaganda be undertaken on a nation-wide scale if the youth of the country is to be induced to take advantage of these vocational courses.



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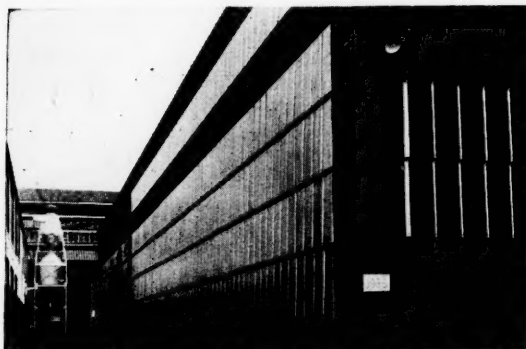
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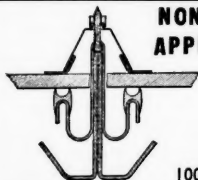
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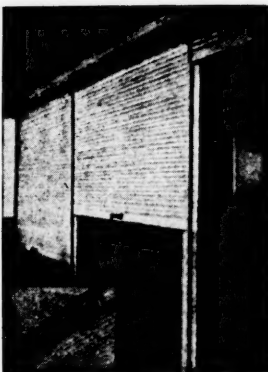
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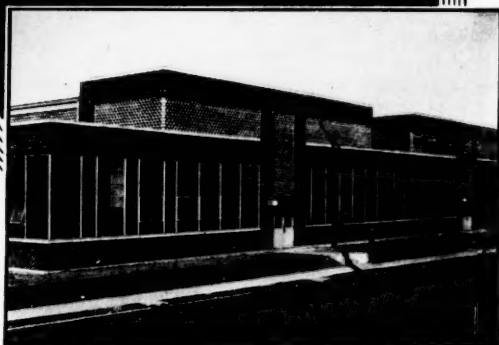
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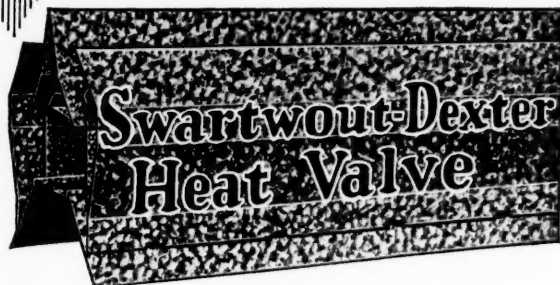
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## Coal Burning Equipment Survey

**M**OST industrial plants have obsolete coal-burning boiler equipment. A survey conducted by the Appalachian Coals, Inc., indicates that much can be done by way of mechanical design of firing equipment to improve the combustion performance of the majority of coals. Over 7,000 industrial plants were surveyed in 8 states, extending from the lower peninsula of Michigan and including portions of Kentucky, Virginia, all of North and South Carolina, and Georgia.

Approximately 15,000 boiler units of an average horsepower of 174 burned annually 20,000,000 tons of coal, an average of 7.8 tons per rated boiler horsepower. Of special interest as an opportunity for the sale of mechanical firing equipment, is the large number of hand-fired boilers, numbering 8,878 units, with an average of 107 horsepower. From a coal consumption standpoint, these hand-fired boilers rank next to underfeed stokers with an annual consumption of 4,089,827 tons, or 21 per cent of the total.

Underfeed stokers and hand-fired grates account for 13,519,202 tons or 70 per cent of the total coal involved in the survey.

Next in importance, from the tonnage standpoint, is pulverized coal-firing equipment. Although numbering only one-twentieth as many units as the underfeed stoker, it burned one-third as much coal because the units are larger and operate at higher rates.

Chain grate stokers rank third among mechanical-fired units in total annual tonnage; second in boiler horsepower per unit as well as coal burned per horsepower.

## DuPont Adopts Disability Wage Plan Benefits

**I**T is estimated that 41,000 employees of the E. I. du Pont de Nemours and Company will be eligible for the benefits of a disability wage plan adopted by the company recently. This number represents about 80 per cent of the employees of du Pont companies and their subsidiaries, in 81 plants located in 27 states. The plan becomes effective June 15.

After that date all employees whose names have been on wage-rolls for at least one year will receive full wages during any disability resulting from non-occupational illness or injury for a maximum period of three months, less a waiting period of two full working days.

The plan was a composite of five plans submitted to the local managements by five of the 72 Works Councils representing employees. The resulting suggestions were then forwarded to Wilmington, and a final plan representing the combined views of all Works Councils was formulated and presented to the Executive Committee.

Under current conditions of employment and wage disbursements, the company estimates the operation of the plan will require an additional outlay of between \$1,500,000 and \$1,750,000 annually.

## Four-Year Apprentice Plan of Lynchburg Foundry

**L**ACK of skilled craftsmen in every industry has only proven the necessity for planned training of workmen by industry. Many companies have long had apprenticeship plans in operation. That of the Lynchburg Foundry Company, Lynchburg, Va., was outlined by the personnel director, Macon P. Miller, recently.

The company accepts only high school graduates who are able to pass a physical examination before starting the four-year shop and classroom course. Inaugurated this year by the Lynchburg Foundry Co., was a plan to draw up contracts with new student craftsmen, though there is no law in Virginia to require the indenture of apprentices. These contracts will outline hours of work, wage scales, and class work requirements.

After a probationary period of three months, a Lynchburg apprentice is paid by the hour for work done in the shops. In addition to the shop time, the men put in 6 hours in classes each week for which time they are not paid. At the end of each 6 months period the men are, upon approval of work and study completed, given pay raises of 3 cents an hour. The first year the vacation is one week with pay; the second year and thereafter, two weeks with pay.

Upon acceptance as a student on probation, each man is given a set of tools, which become his own property on completion of the course, at which time also each man is given a cash bonus.



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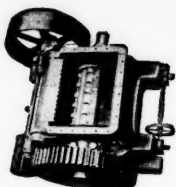
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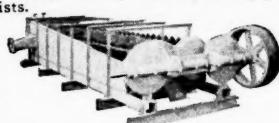
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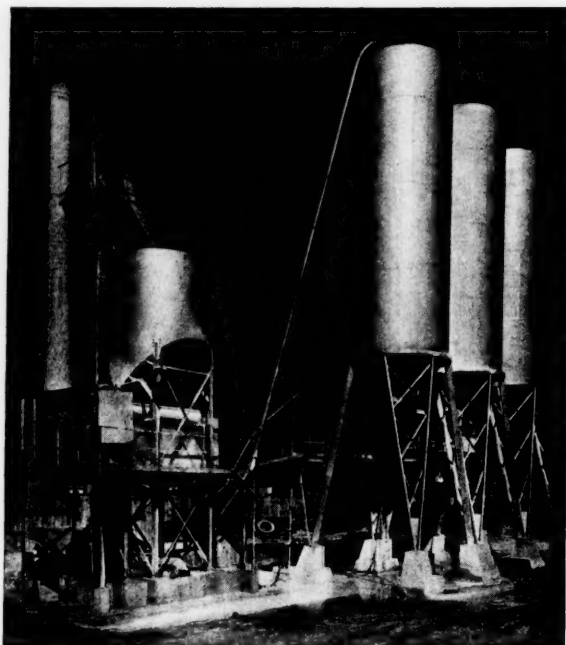
Offices in Principal Cities

## ADDS LIME PUTTY EQUIPMENT

**A**DDITION of a third Brooks-Taylor aged lime putty tank supplied by the Chicago Bridge and Iron Co., practically doubled the capacity of the Super Concrete Corporation's Washington, D. C. plant. Each of the tanks is 10½ feet in diameter by 28 feet high.

Of standard design except for a special type dry lime batcher, the tanks serve a fleet of 60 mixer trucks. The batcher is mounted over a mechanical slaker, and beneath the dry lime storage bin. An extra-fast-slaking quicklime obtained in West Virginia is used.

This lime is drawn from the V-shaped bottom of the bin into the dry-lime batcher, whence it is dumped into the automatic slacker, into which the specified amount of water has been run. Spiral blades rotate this mixture



Super Concrete Corporation's Brooks-Taylor Lime Putty Installation

until properly mixed, when it is run off through special valves to a vibrating screen which removes all lumps and for-

eign matter. After passing through the screen the mixture is run to the sump, and then to the ageing tanks. These tanks have vertical filters to carry off the excess water which comes from the ageing putty.

After adequate ageing the putty is drained through 3-inch gate valves, and measured for shipment with a portable batcher mounted on rails, so that it can be used at any of the three tanks, beneath which the mixer trucks are driven.

## Mobile Warehouse Uses 40 Carloads of Corkboard

The five-story refrigeration warehouse in Mobile, Ala., now being built as part of the port expansion program, recently received a shipment of 40 carloads of Mundet corkboard and one carload of cork pipe covering, to be used in low-temperature insulation.

Rated one of the most modern plants of its kind in the country, the Mobile warehouse is made of reinforced concrete, with brick curtain walls. It is divided into large rooms, consisting of coolers and sharp freezers. Approximate capacity is 250 carloads of goods. In addition to the cold-storage warehouse, the port of Mobile has also a spacious fruit terminal that will be accessible to cargoes directly from ship, when a channel is completed from the harbor channel to the warehouse dock. The new units are located at the Alabama State Docks, and are operated by the Docks Commission.

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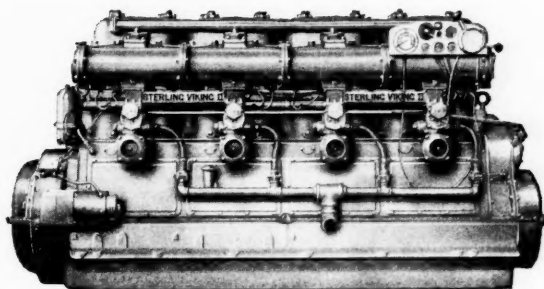
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Galveston; and the Northwest Ice and C.S.Co., Kent, Wash. Frick Booster Ammonia Compressors like those here shown are making savings up to 34 per cent in horsepower, on low temperature work. For freezing ice cream as well as other foods, they're unequalled. Ask for Bulletin 516 and get all the facts.



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## City Ordinance Control of Electrical Appliance Sales

By

**T. W. Bowry**

Chief Electrical Inspector, Department of Public Utilities Richmond, Va.

**MANUFACTURERS** of electrical appliances throughout the country should familiarize themselves with city ordinances on requirements relative to sales control of electrical devices and materials. Most cities have such regulations to increase safety and reduce the fire hazard.

Richmond has an ordinance enacted several years ago prohibiting the sale or display of any electrical materials, devices, appliances, etc., that are not approved by the National Board of Fire Underwriters, where there is more than one approved manufacturer of such a device. If there is only one approved manufacturer of a certain device, in order that manufacturers may take advantage of new patents, etc., the City will issue a temporary permit pending the approval of this product by the Underwriters' Laboratories, Inc. The Inspector's office of the Richmond Department of Public Utilities is constantly receiving telegrams and other requests from manufacturers of electrical products who have been caught in the jam by shipping electrical products into this city that have not been approved. We have frequently had large

shipments of radios, ranges, refrigerators, and electrical fixtures of all kinds come into the city that we had to reject and disbar the sale, causing unnecessary expense to the manufacturer and a loss of time and profit to the local merchants on possible sales.

All of our merchants use a sticker attached to their order blanks stipulating that all electrical materials in general must be approved before being shipped to this city, but it seems that some manufacturers and distributors pay little attention to this until the shipment is made, possibly thinking that by some method they may get by after the products have been delivered to the local merchant.

The electrical sales control ordinance is now functioning efficiently, after considerable trouble when it was first put into effect. We now get 100 per cent cooperation from the merchants. We believe this ordinance is a great factor of safety to our residents who are not familiar with the life and fire hazards due to unsafe electrical materials, both in manufacture and assembly.

### TRADE ASSOCIATIONS—

Directory—listing more than 2400 trade associations of national or interstate scope, comprising approximately 1800 associations of manufacturers, 300 associations of wholesalers and retailers, 200 associations of business service firms, and 100 associations of exporters and importers (and foreign chambers of commerce); it is indexed by commodity or service and by leading cities for quick reference; prepared by L. W. Marceron and C. Judkins, Chief, Trade Association Section, Marketing Research Division; price 10 cents.

United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C.

### The SUNPAPERS of Baltimore

by Gerald W. Johnson, Frank R. Kent, H. L. Mencken and Hamilton Owens. Published on the one hundredth anniversary of the SUN, May 17, 1937. Alfred Knopf, \$3.75.

A history of a great daily's one hundred years; its battles, political, journalistic, financial and humanitarian; its infancy, youth, manhood and fatherhood.

The smoke of battles rises from the chapters written by Kent and Mencken. The thrill of achievement comes to the reader from Johnson's narrative of the papers' infancy and youth. The accounts of daring and business acumen of the Founder (Arunah S. Abell, who with his partners, William M. Swain and Azariah H. Simmons, also founded the Philadelphia *Public Ledger*), are extremely interesting, even to the layman.

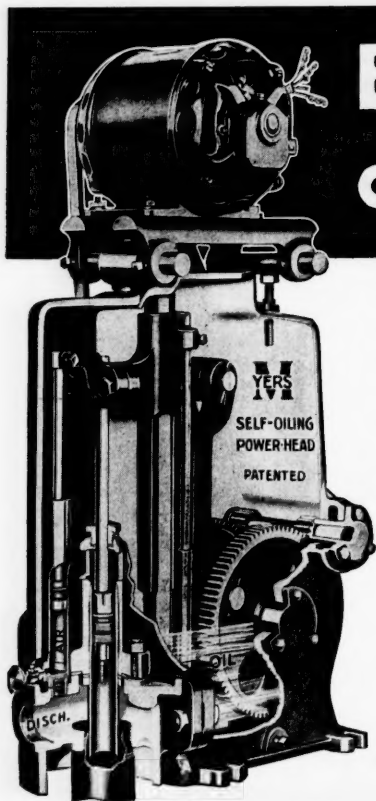
Of the four authors all but Mr. Kent are connected with THE EVENING SUN, first published April 18, 1910.

Particularly noteworthy are the parts of the narrative dealing with the wars and depressions survived by the SUN.

To Baltimoreans the book is a surprise history of the city. The men who built the city's culture are here—George Peabody, William T. Walters, Peale, Poe, Junius B. Booth, Robert Mills, John P. Kennedy and the Abells. Many passages startle the reader. The unseeing pre-Civil War attitude and total unpreparedness of the SUN; its long years of total neglect of politics, ("petty strifes"), the long list of literary "greats" who once were SUN men.

The old lady shows her medals, and her offspring—THE EVENING SUN, and both have reason to be proud.

"How to Be a Good Foreman"—a 186-page volume, setting forth in a practical way things an industrial foreman should know to keep abreast of changing conditions in American industry. The book is by Charles Reittel, of Stevenson, Jordan & Harrison, Management Engineers, and is from the press of The Ronald Press Company, New York. It is priced at \$1.50.



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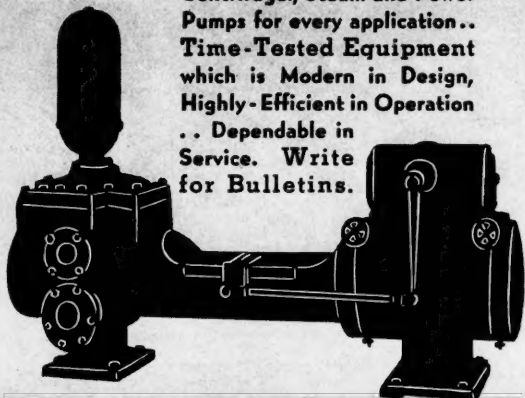
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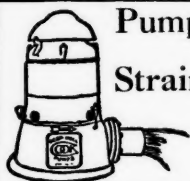
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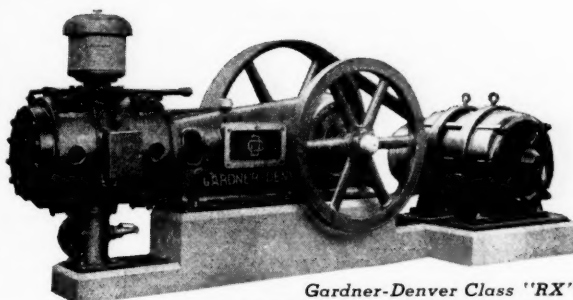
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Norton Company, Worcester, Mass.

### MACHINE FASTENERS—

Booklet—"Handbook of Common Machine Fasteners," 20 pages of size to fit into average drawing instrument case, developed as part of draftsman's equipment, presenting illustrations of the latest accepted standard method of drawing various types of bolts, nuts and rivets; free copies available for engineering firms, engineering colleges, trade and technical schools, etc.  
Russell, Burdick & Ward Bolt and Nut Company, Port Chester, N. Y.

### TIME CONTROLS—

Bulletin G-14—describing types of automatic timers involving the design of special equipment where standard timers are not applicable.  
Automatic Temperature Control Company, Inc., Philadelphia, Pa.

### CANNING MACHINERY AND SUPPLIES—

General Catalog 600—modern canning equipment for food products, presenting to canners information and data on machinery that has proven practical.  
A. K. Robins & Company, Inc., Baltimore, Md.

### CAST IRON PIPE—

Office Publication—"The U. S. Piper," presenting in June number as leading feature a story regarding the water supply for the Greenbelt Resettlement Project in Maryland, in which Super-deLaunaud pipe is used; other illustrative and descriptive articles covering Southern installations of U. S. Cast Iron Pipe.  
United States Pipe and Foundry Company, Burlington, N. J.

### CAMERON MOTORPUMPS—

Catalog—Cameron Motorpumps, compact machines combining electric motor and centrifugal pumps in single unit, capacities ranging from 5 to 1000 gallons per minute for heads to 500 feet, motor sizes ranging from ¼ to 40 horsepower.  
Ingersoll-Rand Company, 11 Broadway, New York.

### BLOWER SYSTEMS—

Advance publication of the report of the Committee on Blower Systems, covering the subjects of Air Conditioning and Ventilating Systems in Other Than Residences; Warm Air Heating and Air Conditioning Systems in Residences, and Blower and Exhaust Systems for Dust, Stock and Vapor Removal.  
National Fire Protection Association, 60 Batterymarch Street, Boston, Mass.

### VALVES, FITTINGS, ETC.—

Publication—"Walworth Today," 12-page bi-monthly magazine on valves, fittings, pipe and tools of interest to industrial executives and engineers. The Walworth Company is represented in important cities of the South: Dallas, Houston, St. Louis, and Tulsa and has works at Attalla, Ala. near Birmingham.  
Walworth Company, New York City.

### SURFACE MAINTENANCE—

Catalog—"The Better Maintenance of Metal, Concrete, Wood, Glass and Composition Surfaces," with a Skybrite Handy Application Index.  
The Skybrite Company, Cleveland, Ohio.

### DYNAMITE—

Bulletin—outlining the characteristics of dynamite and purposes for which it can be used, including such commercial purposes as mining, quarrying, engineering work, agriculture, etc.; publication also contains mine production statistics.  
Institute of Makers of Explosives, 103 Park Park Avenue, New York.

### BURROUGHS ELECTRIC CALCULATORS—

Folder—on Burroughs New Electric Calculators outlining their advantages for calculating work.  
Burroughs Adding Machine Company, Detroit Mich.

### MORSE FILTER PLANT—

Bulletin—illustrating and describing the Morse Filter equipment used primarily to filter municipal and industrial water supplies.  
Chicago Bridge & Iron Company, Chicago, Illinois.

### AIR FILTERS—

Catalogue AUT-37—Air-Maze Automotive Air Filters; Catalogue NIND-37—Air-Maze Industrial Air Filters.  
Air-Maze Corporation, Cleveland, Ohio.

### BELT CONVEYORS—

Catalog—REX Belt Conveyors, containing complete and specialized information on the design and application of belt conveyors for handling bulk materials, with listing and description of belt conveyor equipment; publication developed for convenience of belt conveyor users and designing engineers.  
Chain Belt Company, Milwaukee, Wis.

### CONTINUOUS RAIL—

Pamphlet No. 116—"Continuous Rail For Main Haulage Track," outlining advantages of jointless track and ease of handling Thermit rail welding, with economies, etc.  
Metall & Thermit Corporation, 120 Broadway, New York.

### PUMPS—

Bulletin 5814—Fairbanks-Morse Centrifugal Fire Pumps;  
Bulletin 5870—Fairbanks-Morse Centrifugal Pumps;  
Bulletin 6150—Fairbanks-Morse Simplex Self-Oiling Power Pumps.  
Fairbanks, Morse & Co., Chicago, Ill.

### REFRACTORY MAINTENANCE—

Folder—Super Thermo-Stucco, a new refractory development of Chicago Fire Brick Company, which is declared to be a money-saving method of refractory maintenance.  
Chicago Fire Brick Company, Chicago, Ill.

### MIRRORS FOR HOMES—

Booklet—illustrated, "Mirrors In The New American Home—And Other Uses."  
Mirror Manufacturers Association, Tribune Tower, Chicago, Ill.

(Continued on page 78)

## OVERHEAD MATERIALS HANDLING EQUIPMENT

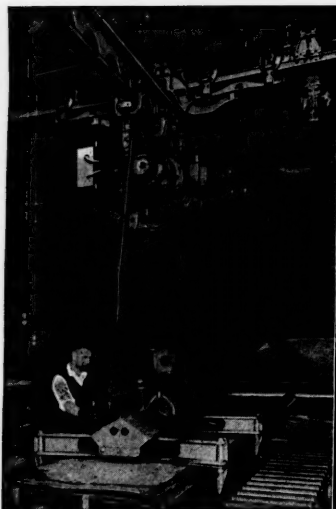


Photo 2104

Photo 2104

Hand Propelled carrier with motor operated hoist and grab, both push button controlled.



Photo 2020B

Photo 2020B

Hand Propelled carrier chain hoist and hand operated grab.

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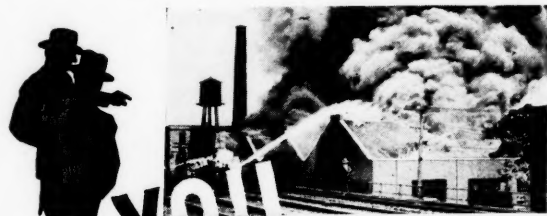
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Specialists in upset work.  
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MR-6-37

JUNE NINETEEN THIRTY-SEVEN



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**UPWARD PROFIT CURVE**

● On the production line or on the "haulage line," uninterrupted, efficient movement of materials contributes to economy and profit. Interplant haulage, or car switching, is best done on rails, with the clean, rapid, flexible, compact power of a Whitcomb Locomotive.

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Gasoline or Diesel Mechanical Drive

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Plant at Rochelle, Illinois.

Subsidiary of The Baldwin Locomotive Works. All sales made by The Baldwin Locomotive Works, Paschall Station Post Office, Philadelphia, Pennsylvania.

## TRADE LITERATURE

(Continued from page 76)

### STEEL IN PICTURES—

Booklet—"The Picture Story of Steel," depicting, by photographs and brief, non-technical description, some of the more important steps in steel manufacture.

American Iron and Steel Institute, New York City.

### FIRE EXTINGUISHERS—

Folder—"The Fire Extinguishers That Save Recharging Dollars," describing new Kidde and Anti-Freeze extinguishers, from which water is discharged by pressure supplied by a cartridge of carbon dioxide gas; units have approval of both the Underwriters and Factory Mutual laboratories and have passed exacting tests of the U. S. Bureau of Marine Inspection and Navigation.

Walter Kidde & Company, Bloomfield, N. J.

### P & H SMOOTHARC WELDERS—

Bulletin No. W10—"The Arc-Welding of Tomorrow," presents advantages gained by the internally stabilized arc and illustrates many Smootharc models, from the vertical 75 and 100 ampere types to the 200, 300, 400 and 600 ampere horizontal models; also shows stationary and portable-trailer models.

Harnischfeger Corporation, 4200 West National Ave., Milwaukee, Wis.

### COLLOIDAL GRAPHITE—

Technical Bulletin No. 270.1—application of Colloidal Graphite to industry, treats specifically the "Utility of Graphite Surfaces."

Acheson Colloids Corporation, Port Huron, Mich.

### PAINT FOR PLANT MAINTENANCE—

Catalog—describing specialized paint and cleaning products for plant maintenance, offering a product to solve every major industrial maintenance problem, with an especially interesting chart showing in handy form the proper product for each type of surface and condition.

The Skybrite Company, Cleveland, Ohio.

### REVERE COPPER AND BRASS—

Company Publication—titled "Revere Min-Number Six," 1937, leading article on Revere's Technical Advisory Service, by Charles A. Macfie, vice president and general manager.

Revere Copper and Brass, Incorporated, New York City.

### FRICTION CLUTCHES—

Leaflet—Illustrating and describing Johnson Friction Clutches, listing improvements in the past several years and changes in material in a number of parts to Molybdenum and chrome nickel steels.

The Carlyle Johnson Machine Company, Manchester, Conn.

### SOLENOID STARTER—

Booklet—"The Story of the Solenoid Starter" brings out by questions and answers and numerous sketches, the fundamental differences between the solenoid type motor starter and the conventional clapper type starter.

Allen-Bradley Company, Milwaukee, Wis.

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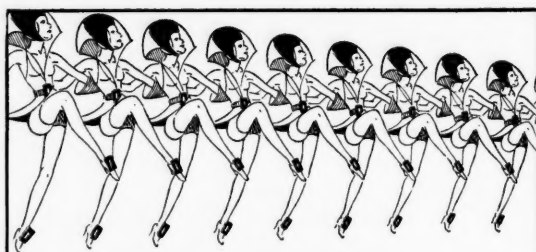
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A good chorus makes a good show, but what makes a good chorus? Uniformity or co-ordination in both costume and action!

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"Co-ordinated Packaging" can actually increase your sales and actually decrease the cost of the packaging itself. Let us co-ordinate your box or carton, counter or window display, shipping container, etc., by giving them a distinctive style and identity.

● May our Art Department submit designs without obligation? ●

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Holt Hardwood Co., Oconto, Wis.

STRIP

MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION



## Cold Pipe Insulation Pointers

**A**n engineer recently wrote that he was having considerable trouble due to condensation on a cold water line. Cold water lines are ordinarily insulated with either ice water thickness cork pipe covering, or one of the many grades of felt used for this purpose. Tar lined wool felt is most frequently used, although there is considerable use of wool felt just wrapped around the pipe, and also of air cell covering made up of a type of corrugated paper. These are the cheapest commercial insulations. High grade cork covering is generally used where one wants a good lasting job. Cork usually costs more in the first place than any of the various felt types.

There is a sharp line of demarcation between sweating and frosting. Sweating

can occur where the pipe temperatures are as high as 50 or 60 deg. F. Sometimes the temperature is even higher depending upon the humidity and temperature conditions in the room. It is ordinarily manifest upon lines from 40 to 50 deg., under, what might be termed, normal conditions. For this type of work the cheaper insulations are usually sufficient. When the temperature of the line is that of "ice water," as, say temperature below 40 and above 35, the line will almost invariably sweat, and it is here that cork finds its most usual application. Cork does not rot or warp. Regardless of the temperature of the cold pipe, whether it is 100 deg. F. below zero or even lower, and regardless of the room temperature, whether it is 75 deg. F. or higher and regardless of the humidity in the room, when properly insulated with high grade cork there will be no sweating or frosting on the line. Of course, where the temperature is exceedingly low commercial thicknesses are not sufficient. Special insulation must then be designed. In fact, special insulation must be designed for all temperatures below minus 10 deg. F.

## N-O-T-I-C-E

### SCHOOL BONDS FOR SALE

\$30,000.00 4% Dickenson County School Funding Bonds dated June 1, 1937, and payable \$3,000.00 each on June 1, 1939, 1940, 1941, 1942, 1943, 1944, 1945, 1946, 1947 and 1948; coupon-bearing bonds; right to reject any and all bids reserved; bids to be sealed and not less than par; sale to be at office of School Superintendent in Clintwood, Virginia at 2 P. M. June 15, 1937; to be issued under authority of House Bill No. 357, an act of the General Assembly of Virginia, approved March 27, 1937.

Mrs. Catherine C. Remines  
Clerk—Dickenson County School Board

## MANUFACTURING BUILDING

### For Lease

Building suitable for light manufacturing, such as Hosiery, Shirt, Overalls, Pants, Ladies' Garments. Plenty labor. No strikes.

T. Z. DANIEL, MILLEN, GA.

# Classified Opportunities

## Business Opportunities

\$6,000,000 annually leaves the South for lemons transported half way around the world. A good, thin skin, juicy, commercial size lemon, adapted to Florida growing conditions, has been developed and proved—a problem that took 20 years to solve. Advise the amount you could invest and we will submit a sound proposition offering unusual opportunities.  
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**FOR SALE**—Large Tracts—Pine, Cypress, Hardwood, Gum, Cedar and Mahogany, in Southern States, California, Mexico and Canal Zone. Also Oil, Coal and Mineral Lands. Timber Listings wanted. International Timber Brokers, Box 34, Atlanta, Ga.

Florida Citrus Groves. 300 acres irrigated groves. Prospects of 75,000 box crop next season. Three car daily capacity Packing House. Fruit packed under Nationally known brands. Health-Fruit and Sunrayed. Splendid opportunity. For further details, write John F. Fugazzi, Clearwater, Fla.

Capital or partner a good line man, men or company who want a specialty that will sell good and that there would be a big demand for. The only furnace with complete Combustion. This is worth investigating. John Cook, 36 Narragansett Rd. Buffalo, N.Y.

## INVESTMENTS

**CITRUS AND LIVESTOCK IN FLORIDA**—offers the greatest possibilities ever before. I have had years of practical experience in both lines, and have some real investments. Our cattle ranch with 3000 head at \$20.00 per head pasture lands can be bought or leased.

Write P. John Hart,  
Associated with J. Wesley Coleman,  
broker, Punta Gorda, Fla.

## Patent Attorneys

**PAUL B. EATON**, Patent Attorney,  
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614 Munsey Building, Washington, D. C.,  
417 Wachovia Bldg., Winston-Salem, N. C.

## Orchard

Peach and Pecan orchard 2540 acres, 12 miles S. W. of Albany, Ga. 25,000 Peach trees 2 to 6 years old. 2,000 Pecan trees 8 to 15 years old. Fully equipped. Property leased for oil, drilling on ¼ royalty basis. Will sell undivided half interest for \$40,000. For further details write, John F. Fugazzi, Clearwater, Fla.

## Iron Ore Deposit

One of the largest Brown Iron ore deposits in the South (An official County map states Iron Mountain) in Murray County, Georgia, near the Tennessee line, and near Cisco, on the L. & N. R. R. for sale by owner, Address, Frank A. Powell, Fort Myers, Florida

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### FOR SALE

27,000 acres, located 14 miles southwest of Albany, Georgia, one side fronting on paved highway, two sides graded roads. Well fenced, graded roads and permanent bridges throughout.

Fire breaks constructed and patrolled for 5 years. Stocked with 1,700 grade cattle, also elk, deer, turkey, and smaller game. Excellent fresh water fishing. 10,000 acres improved pasture and farm lands, balance has good stand young timber.

A partial liquidation our investments desired and will accept \$14.00 per acre complete or will retain estate with substantial reduction in price.

Property is so located that it can be divided into two tracts.

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A real country home, with good income, 18 acre citrus grove. Good land, good location, good improvements, six inch flowing well, last season's fruit crop 3000 boxes. Price \$13,500.00.

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Approved Watchman's Clocks

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**MANUFACTURERS**—We offer you the services of an experienced and well organized concern capable of dealing with all phases of foreign trade. We will build a market abroad for your products on a sales commission basis.

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Good factory site just outside corporate limits, splendid Middle Tennessee town; on railroad and facing trans-continental Highway. Abundant independent water supply. Cheap labor. Address No. 9370, c/o Mfrs. Record.

**For Sale or Lease**—Fifty acre tract, thousand feet frontage on river. Railroad belt line through property. Suitable for any type of Port or Industrial operation. For further details, address Wilmington Chamber of Commerce, Wilmington, N. C.

**CANADIAN SITES ARE A GREAT ADVANTAGE** to the manufacturer for exporting to Great Britain or other parts of the British Empire. For sites having both rail and deep water shipping facilities, close to Niagara Falls power plants with cheap power, address E. C. Bradley, Fonthill, Ontario, Canada.

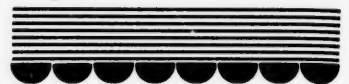
**THE TOWN OF NEW CASTLE, VA.** desires to get in touch with a manufacturer desiring a location that will employ from one hundred to five hundred men or women.

Write Chamber of Commerce,  
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MOTORS ALL STANDARD MAKES  
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220 G.E. Synch. 600  
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V, D.C. Gen. Conn. to  
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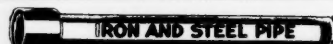
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60 cycle, 11500—460 Volts. EACH

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